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"THE JAPANESE NATIONAL PENSION SCHEME AND ECONOMIC GROWTH"

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CONTENTS

<u>Chapter</u>	<u>Page</u>
Introduction	1
I. Place of Finance of Social Services in the National Economy of Japan	5
1. Introduction	5
2. Preparatory Discussions	5
3. Finance of Social Services	11
4. Social Insurance and Pension Insurance	28
Appendix, Techniques and Assumptions in Table 10	40
II. Welfare Pension Insurance Scheme and National Pension Scheme	42
1. Introduction	42
2. Preparatory Explanations	44
3. Welfare Pension Insurance Scheme and Special Account System	53
4. Trust Fund Bureau Special Account and Fiscal Investment and Loan Programme	70
5. National Pension Scheme	106
Appendices 1. Accounts of Welfare Insurance Special Account	120
2. Interest Revenue of Welfare Insurance Special Account	123
III. The National Pension Scheme and National Expenditure	127
1. Introduction	127
2. Preparatory Analysis	127
3. Building a Comparative Static Income Determination Model	155
Appendix. A Comparative Static Income Determination Model in the Case of an Income Proportional Contribution System	160

CONTENTS (Contd.)

<u>Chapter</u>	<u>Page</u>
IV. Statistical Illustration	166
1. Introduction	166
2. Total Impact Effect	167
3. Composition of the Impact Effect	182
4. A unit Effect	190
5. Tentative Conclusions	194
V. The National Pension Scheme and Economic Growth	200
1. Introduction	200
2. Economic Growth of Japan	200
3. Effect of National Pension Scheme on Investment and on Economic Growth	230
4. Investment Policies of the National Pension Scheme and the Fiscal Investment and Loan Programme	248
VI. Other Studies of the Future of Pensions in Japan	281

INTRODUCTION

This thesis is an exercise to apply macro-economic analysis to the Japanese National Pension Scheme. Though this treats the effect of the National Pension Scheme on the national economy, the analysis is limited to its impact on national expenditure and on economic growth. Other important aspects, such as income redistribution, are not considered, though a short reference is made to the built-in stabilizing effectiveness of the pension scheme.

I have concentrated on the problem of growth because of its importance in the case of the Japanese economy. I shall try to demonstrate the impact of the new National Pension Scheme on future economic growth and this requires me to examine the special features of the institutional framework of the Japanese National Pension Scheme in so far as it may affect the structure of government investment.

In analysing the effect of the Scheme, some of the analytical tools of macro-economics, such as the Keynesian income determination model, a growth model of a Harrod-Domar type, etc., are used. In analysing the effects on national expenditure only the direction of changes in expenditure produced by the Scheme are indicated. Given present information, an econometric model would not seem to be appropriate.

In essence, this is an analysis of the pension scheme, yet several important traditional topics of social security are considered because they form the background to a study of pensions.

Although a short statistical and historical description of the place of social services in the economy is given, historical details are not the main concern of the present thesis. Administrative details of the financing of the Scheme are not provided, although considerable space is given in the analysis to the structural framework of the Japanese pension scheme.

It was fortunate for me that, in the midst of the research, the new National Pension Scheme was enforced (in April, 1961), thus facilitating accessibility to information; and that furthermore, the Japanese economy itself has continued to show a remarkable rate of growth, attracting wide attention; and that, thirdly, the main concerns of the government policy have consequently become clearer than before - partly because of the appointment of the new Prime Minister, Mr. Ikeda (whose professed main policy objective lies in a high rate of economic growth), and partly with the formulation of the "Doubling National Income in Ten Years Plan, 1961-1970)."

In carrying out the analysis, I am indebted to two previous studies. The first is The Economics of the National Insurance by A.T. Peacock.¹ Its thorough analysis on the structure and the economic effect of the British National Insurance Scheme has been of very great help in presenting an analysis of the Japanese case. The first two chapters of this thesis very closely follow the methods developed in that study.

The second is the study, by a group of graduates in the

¹ Peacock, A.T., The Economics of National Insurance, William Hodge and Co., Ltd., 1952.

Economics Department of Tokyo University, on the economic effect of the National Pension Scheme, supervised by Professor Kimura.² This is an intermediate report of the result of the research carried out at the request of the Ministry of Welfare for their administrative purposes. It is mainly an econometric analysis, composed of model building, magnitudal calculations, and some discussions. It has been a very useful guide, although I have had to deviate rather sharply both in methodology and conceptual approach, as I demonstrate in my criticism of Professor Kimura in Chapter VI.

In the composition of this thesis, I am very greatly indebted to Professor Peacock for his extensive guidance, his continuous help and encouragement, valuable suggestions, criticisms and advice. Without his guidance and help, no single part of interest in the thesis would have been possible. My debt to him is inexpressible. I am grateful to the United Nations who have given me fellowships which have made me financially able to carry out this research. I am also grateful to the Japanese Government, who have given me leave of absence to accomplish this work. I was supplied with statistical material by many government officials in the Ministry of Finance, Ministry of Welfare, Economic Planning Agency, etc. Particularly am I very much indebted to Mr. Kitada of the Ministry of Finance. He has supplied me with a large amount of internal statistics and has also so kindly answered every enquiry in each item of my questionnaires concerning very detailed administrative procedures. Without these, the analysis of Chapter II would have been almost impossible. I am also much

² Kimura, K. and Others. The Economic Effect of the National Pension System, (Interim paper internally printed in Ministry of Welfare, July, 1958.)

indebted to Mr. Fuchiwaki of the Ministry of Welfare for his help.

I have been assisted by many who have kindly read the drafts of my thesis and have helped me to express myself in the English language. I am also grateful to members of Staffs and Post-graduate Seminars of the Department, who have encouraged me in my research. Some of the discussions with them were very valuable. Finally, through my father I was able very quickly to receive the statistics for which I asked, or replies to my letters of enquiry to Government Departments.

Though I owe so much to these many people, I am, of course, entirely responsible for any errors which may still remain in the treatment or the analyses.

CHAPTER I. PLACE OF FINANCE OF SOCIAL SERVICES IN THE
 NATIONAL ECONOMY OF JAPAN

Section 1 Introduction

The object of this chapter is to analyse the place of the finance of the social services in the national economy with a special reference to the pension insurance schemes.

Section 2 is concerned with preparatory discussions. Removal of misunderstandings, functions which the social insurance may have on the economy, and the economic problems and the main government policy objectives of Japan, are stated. Our main analytical concern is clarified in this Section.

Section 3 is concerned with clarifying the place of the finance of social service in the national economy. Three categories of social services, their development records, and their financial significances are mentioned, with the aid of statistics.

Section 4 is concerned with clarifying the place of the finance of social insurance in the social services, and the place of the finance of pension insurance in social insurance, with the aid of statistics.

Section 2 Preparatory Discussions

The object of this section is to clarify some of the important points of the social insurance finance and also to introduce the main policy objective of the government to be kept in mind in the following analysis.

First of all, we have to clear up a misunderstanding that social insurance is always the sole, or the most important, or the most efficient method of securing the minimum standard of life for all citizens.¹ This kind of misapprehension is apt to bring about a biased opinion, which is often too impetuous on the expansion of social insurance, to the neglecting of all other social services and also other economic factors of the nation's development programme. We cannot deny that at the present stage of the economy, we cannot get rid of the problems of poverty completely. A certain degree of inequality of income distribution is unavoidable. We cannot expect everyone in society to be able to prepare for their old age, unemployment, sickness and other unforeseeable eventualities. Moreover many of these misfortunes may closely relate to the deficits of the economic mechanism of the society as a whole. At this stage of the economy, social insurance and other kinds of state social services cannot lose their social and political significance in their primary objective as means to protect individuals in times of poverty and/or of need. However, it is usually thought to be more desirable to achieve a high rate of economic growth, preferable without causing a serious imbalance in the economic structure, and with a maintenance of stability,

1. This is pointed out by Peacock, A.T., in The Economics of National Insurance, William Hodge and Co., Ltd., 1952, pp.33-34.

more equalizing income distribution, or maintenance of full employment; so that each component of society can prepare for itself for old age or unforeseeable eventualities. But there arises the question: will social insurance lose its *raison d'être* at that time?² It may have another reason for its existence which is more positive than the primary objective. It may bring stability in the matured economy. It may increase effective demand in a depressed economy. We have to analyse the function of the scheme. This urges us to suspect that even in the process of a rapid economic development, or even in the foreground of largely extended poverty and misery, social insurance may have another reason for its existence which is far more significant than that of its primary objective. Though it may not be generally understood, nor be approved, social insurance may help the development of the economy.

Even if we come back to the Japanese economy, its standard of life has still been lower than that of developed countries. There has existed a considerable amount of unemployment, mostly in the form of a disguised unemployment. Therefore, the government has had to endeavour to achieve a high rate of economic growth and, at the same time, to increase employment opportunities. The rate of economic growth has been very high,

2. The question is raised by Peacock, A.T., in the Preface to the Japanese translation of his book, *ibid.*, in 1959.

and is expected, more or less, to continue in the future. (See Chapter V Section 2). In this situation, a high rate of economic growth has become a main object of the government policies.³

However, the dual structure of the economy, which is one of the main economic and social problems in Japan, may not be solved by a mere high rate of growth. This duality of the economy owes much to the historical necessity levied on the Japanese economy. That is, as she started to develop much later than other developed western countries, she needed to grow far more rapidly than other countries in order to follow up and arrive at the level of their economies. For that purpose, the government had to take steps to protect and foster large scale key industries, and thus there were founded a group of modern, competitive large scale industries, with high productivity. Because of this, a large number of medium and small sized industries and the inefficient agricultural sectors - these absorb a majority of excess labour - were left behind. Moreover, partly because of the productivity and partly because of the specific feature of the trade union organizations, - namely, each union is organized within each company - wage pressure has been much stronger in big industries. Because of this, the dual structure of

3. The present government under Prime Minister Ikeda, H., is considered to base its fundamental long term economic policy on the "Doubling National Income in Ten Years' Plan" presented by the Economic Advisory Committee, Economic Planning Agency, Dec., 1960.

industries also comes to mean the dual structure of wage levels and the gap has sometimes shown a risky tendency to spread wider. This is socially an undesirable feature. In this situation the government is always urged to consider a way of solving and adjusting this problem, while achieving a high rate of growth. Therefore, we have also to be aware in our whole analysis of the concern of government policy with the functions of social insurance. We repeat: the policy of the government is primarily that of achieving a high rate of growth, possibly with, at the same time, a mutual adjustment of the economy's dual structure.

We have also to be very careful of such criticisms that confuse public with private insurance schemes and claim profitability for the government social insurance schemes. We have first to admit that these structures of social insurance are not primarily regulated by the rule of private insurance schemes. The main stress is that it is one of government policy, fundamentally rooted in and subsidized by the taxation revenue of the Exchequer, guaranteed by the tax collecting authority of the government and assisted by the power of the government to enforce the scheme. The political, social or economic pressure may sometimes lay down a certain direction of government policy related to the pension scheme, and consequently, the interest revenue of the social insurance scheme may be lower than that obtainable by the market rate. Pension

reserves may be used in unprofitable ways. A part of it may be used as a loan to local governments. But the crucial point does not lie in its profitability, nor in the financial soundness of the scheme. If we admit the nature of the contribution revenue of social insurance as a kind of taxation, we come to see its function as a vast income redistribution mechanism. Nevertheless, if we proceed to analyse the present Japanese social insurance mechanism, we shall come to realize that its function does not necessarily lie in income redistribution in the normal sense. That is, the redistribution is not necessarily from people at work (or wealthy) to old people, or people out of work, or in need; but the redistribution is rather from private households to industry, government enterprises, etc.

Now we can clarify our main concern here. The main thing for us is whether the introduction of the pension scheme will intervene in the rate of growth of the national economy or whether it may increase the tempo of it. It may increase consumption by its transfer mechanisms; it may increase savings through the funding mechanism; and it may increase investment by utilizing the thus furnished fund for the industrial development plan. The introduction and enlargement of the social insurance scheme cannot fail to affect the growth paths of the national economy through its impact on the planning aggregate of national income analysis, i.e., consumption, savings and investment. This is the point which fundamentally matters to us. Moreover these effects on the economy will be greater as social insurance grows at a more rapid rate than that of the growth rate of the national economy.

Section 3 Finance of Social Services

As we have already pointed out, social insurance is not the only method of securing minimum standards of life for all citizens. In a large complex body of government policies to sustain and guarantee the minimum standard of life, we see three categories of services different in nature.¹

Firstly, there exists a group of assistance services. These are services rendered for those who are in need, without requiring any counter-payment. The whole expenses are met from the general revenue of the government, which is chiefly composed of the general taxation revenue. For example, such people as are not covered by the present national insurance schemes, (or being sick or unemployed and are not met by the insurance schemes) are taken care of by the government in this category of services. The key act is the Daily Life Security Act, promulgated in 1946. This Act aims at guaranteeing the minimum standard of living for all the population. It furnishes seven kinds of assistance services, i.e., livelihood assistance, education assistance, housing assistance, medical assistance, maternity assistance, occupational assistance and funeral assistance. The non-contributory National Pension Scheme and several social welfare legislations, such as the Child Welfare Act, Physically Handicapped Persons's Welfare Act, the Social Welfare Service Act, etc., also guarantee these services belonging to the category of assistance services. By these separate and independent acts, the protection of the livelihood of those who are in need, the

1. See Peacock, A.T., *ibid.*, p. 34.

welfare of children, the security of families without fathers, the welfare of physically handicapped persons and the protection of the deprived, are guaranteed.

Secondly, there are a group of general community services. These are those which are freely available to all citizens, the services of which are regarded as the government responsibility toward the community, and the cost of which is borne mainly by public funds. Unemployment counteracts, housing, environment hygiene, etc., are included in this category. Education also should be included in this category, but because of its comparative importance in its weight on the national budget and also its importance and uniqueness as a service, the government has treated it as a separate item from other social services. I will separate that item in the first place, and will also show the consolidated figure in the second place.

Thirdly, there come a group of services which belong to the category of social insurance services. These also are state services, and thus necessity is laid down by political and social demand in the community. The government uses a form which resembles private insurance, i.e., a contribution and payments system. But the point we have to be made aware of is that the principles which rule this government scheme are completely different from those of private insurance.² Nemely, the

2. For detailed analysis, See Peacock, A.T., *ibid*, pp. 41-50.

scheme is usually compulsory, the government has power to collect contributions via the taxation authority, the finance is subsidized by the government funds in the form of the Exchequer Supplement and is finally guaranteed by the government Exchequer, whose ultimate guarantee lies in its taxation power. The individual contribution has not a specific relation with the individual benefit, i.e., there exists no risk adjustment in the evaluation of the amount of the contribution. These three categories of social services have developed separately and independently in the history of the development of social services and of the national economy of Japan.

The history of public assistance can be traced back to the beginning of the Meiji Era, even to 1874 when the first, but restrictive public assistance regulation was promulgated. It is, however, after the promulgation of the Daily Life Security Act in 1946 that the modern public assistance system was established. The second category of social services can be traced back to the end of the 19th century, but it is after the Second World War that it was considerably enlarged.

The introduction of national insurance for employees is embodied in the Health Insurance Act of 1922, and for all people in the Health Insurance Act of 1938. It was in 1941 that the Labourers' Pension Insurance Act was promulgated as a first pension insurance scheme for general labourers: it later developed into the Welfare Pension Insurance Act of 1944.

Since these different categories of social services have developed separately and independently by many independent acts, the social service structure became very complicated, and very difficult to analyse. But these individual developments of social services were a great forward push towards the establishment of the "Welfare State".

One point I have to mention here is the speciality of the Governmental Pension Schemes in Japan. When Japan began a modernization movement in the latter half of the 19th century, one of the most urgent tasks which the state had to achieve was the establishment of a very strong and highly centralized government organization, i.e., the construction of an efficient and powerful civil service organization. For that purpose, the state chose by state examinations a well qualified group of officials and gave them specially favourable terms, e.g., in privileges, power, and guarantee of status. One of these favourable treatments of the state for the qualified civil service has been this very Governmental Pension Scheme, though the coverage has greatly increased after the second World War. (However, a recent alteration of the Act has shifted these officials covered by the Governmental Pensions to the Public Officials Mutual Aid Association, without affecting the rights of these qualified to benefit.) In the Governmental Pensions, there exists a kind of contribution, yet its amount is very low and the schemes are chiefly financed by general taxation. It is sometimes discussed as a part of deferred payments, but is not so clear in

its nature. Moreover, the majority of the expenditures are annuity payments to ex-soldiers and their families. In practice, this item is sometimes treated as a part of the social services, and also its figure is used for comparative purposes with other social services. In our analysis, because of its speciality, we propose to treat it separately from social services in the first place. But since it is more convenient to see the separate magnitude of the government pension schemes, and the total magnitude of the social services plus the governmental pension schemes, I will show the total figure later.

The trend of social services expenditures in the general account of the national budget is shown in Table 1. The figures show that it was after the second World War that the finance of social services came to have a very significant place in the national economy. A sharp fall of the governmental pension immediately after the War is due to a temporary stoppage of payments to ex-soldiers. Before the end of the War, a large amount of government expenditures had been spent on armaments, and very little on social services, except on the governmental pensions and on education. The table shows that the social service expenditures have increased not only in absolute amount but also very rapidly in proportion to the total government expenditure. The proportion of social service expenditure to the total expenditure is over 14%, and becomes over 34%, i.e., over one-third of total expenditure, if governmental pensions and

Social Service Expenditures in the National Budget,
1884 - 1960

UNIT		1,000 yen				1 m. yen					
Items \ Year		1884 ¹	1900	1925	1935	1947	1950	1952	1955	1959	1960
1. Social Services	79 0.1 ²	683 0.2	11,545 0.8	32,020 1.4	10,300 4.8	46,564 7.0	107,165 11.5	137,897 13.6	196,345 13.0	220,961 14.1	
2. Governmental Pensions	435 0.5	4,336 1.5	129,688 8.5	173,543 7.8	368 0.2	5,665 0.9	9,647 1.0	86,405 8.5	104,717 7.9	122,687 7.8	
3. Sub-Total (1+2)	514 0.6	5,019 1.7	141,233 9.3	205,563 9.2	10,668 5.0	52,229 7.9	116,812 12.5	224,302 22.1	301,062 20.9	343,648 21.9	
4. Education Services	1,083 1.4	5,834 2.0	100,638 6.6	149,894 6.8	7,081 3.3	22,018 3.3	36,215 3.9	127,244 12.6	184,173 12.2	203,187 12.9	
5. Sub-Total (3+4)	1,597 2.0	10,853 3.7	241,871 15.9	355,457 16.0	17,749 8.3	74,247 11.2	153,027 16.4	351,546 34.7	485,235 33.1	546,835 34.8	
6. Total Expenditure	76,663 100.0	292,750 100.0	1,524,989 100.0	2,215,414 100.0	214,256 100.0	664,576 100.0	932,535 100.0	1,013,314 100.0	1,512,095 100.0	1,569,675 100.0	

TABLE 1

1. Calendar Year for 1884; Fiscal Year for 1900-1960. 2. Statistics in the second row show percentages to the total.

Source: Provisional Compilation of Government Expenditure and Tax Statistics, Research Section, Minister's Secretariat, Ministry of Finance, September 1959, and Expenditures of General Account Classified by Purposes; Budget Bureau, Ministry of Finance, and Statistics for 1884-1925 from the Budget Settlement Papers, Ministry of Finance.

education services are included. This is why in recent years the problems of social services have come to be given increasing attention.

Changes in the composition of government expenditure are shown in Table 2. Transitional expenditure of Termination of the War amounting to 30% in 1947 represents occupation expenses. A large increase in Industry Economy after the War mainly reflects a large amount of expenditure for the adjustment of prices in order to maintain low prices for important fundamental goods against the overwhelming influence of inflation. Apart from these transitional factors, a very low rate of Defence Expenditure is noticeable. Moreover the rate is decreasing in the short run. International comparison with some western countries is shown in Table 3. The proportion of defence expenditure to national income for the fiscal year 1959 is only 1.5%, compared with 8.2% for the United Kingdom, 12.7% for the United States, 7.9% for France, 5.2% for West Germany and 4.3% for Italy.³ The proportion of defence expenditure to the total General Account expenditure of the national budget for Japan is only about 10% and is even less than those of the under-developed countries in Asia, such as India, Burma, Pakistan, Indonesia, etc., whose rates show 20 - 30% or more.⁴

3. Public Finance of Japan for Fiscal Year 1961, (hereafter referred to as Public Finance White Paper according to the usual usage), Research Section, Ministry of Finance, Toyoshimpo Co. Ltd., July, 1961, p. 295.

4. Public Finance White Paper for 1959, *ibid.*, p. 240.

General Account Expenditures Classified by Purposes,
1935 and 1947-1960

Unit		1,000 yen	1 m. yen					
Items	Year	1935	1947	1950	1952	1955	1959	1960
1. Social Services		32.0 ¹ 1.4 ²	10.3 4.8	46.6 7.0	107.2 11.5	137.9 13.6	196.3 13.0	221.0 14.1
2. Governmental Pensions		173.5 7.8	0.4 0.2	5.7 0.9	9.6 1.0	86.4 8.5	116.5 7.7	132.7 7.8
3. Education Services		149.9 6.8	7.1 3.3	22.0 3.3	36.2 3.9	127.2 12.6	184.2 12.2	203.2 12.9
4. National Debt		339.5 17.6	7.6 3.5	83.3 12.5	31.3 3.4	44.2 4.4	54.9 3.6	27.4 1.8
5. External Debt					21.0 2.3	7.2 0.7	32.5 2.1	24.3 1.6
6. National Territory Security Development		131.7 5.9	14.7 6.9	93.7 14.1	114.6 12.3	147.0 14.5	260.5 17.2	287.4 18.3
7. Industry Economy		81.4 3.7	58.5 27.3	121.4 18.3	169.5 18.2	60.3 6.0	66.1 4.4	79.6 5.1
8. Defence and Allied Expenditures		1,024.0 46.2	- -	- -	178.5 19.1	135.3 13.5	156.7 10.4	157.9 10.1
9. Termination of the War		-	64.3 30.0	109.3 16.4	0.1 0.0	0.0 0.0	- -	- -
10. Local Finance		0.7 0.0	25.1 11.7	108.5 16.3	145.4 15.6	160.0 15.8	260.4 17.2	287.8 18.3
11. General Administration		160.4 7.2	11.7 5.5	71.6 10.8	106.5 11.4	92.7 9.2	130.7 8.6	141.9 9.0
12. Reserves		34.0 1.5	2.0 0.9	0.5 0.1	3.0 0.3	8.0 0.8	16.0 1.1	8.0 0.5
13. Others		38.3 1.7	12.5 5.8	2.0 0.3	9.7 1.0	7.3 0.7	37.4 2.5	8.4 0.5
14. Total		2,215.4 100.0	214.3 100.0	664.6 100.0	932.5 100.0	1,013.3 100.0	1,512.0 100.0	1,569.7 100.0

1. For each item in the table the first row of statistics represents expenditure in absolute terms. 2. For each item in the table the second row of statistics represents expenditure in absolute terms as a percentage of total expenditure. SOURCE: As for Table 1.

TABLE 2

Social Services and Defence Expenditures in the Budgets of Nations

Name of Country (Unit)	Fiscal Year	Expenditure Budget (A)	Defence Expenditure (B)	Social Service Expenditure (C)	B/ A	C/ A	Remarks
United Kingdom ¹ (£m.)	1956	5,256.0	1,404.9	1,084.1	26.7	20.6	Health, Housing National Insurance etc.
	1957	5,704.0	1,525.1	1,213.3	26.7	21.3	
United States ¹ of America (\$ m.)	1956	66,540	41,825	7,532	62.9	11.3	Expenditures for Labour & Social Welfare
	1957	69,433	44,414	7,759	64.0	11.2	
West Germany ¹ (m. D-mark)	1956	22,512	6,105	9,814	27.1	43.6	Social Security Expenditures
	1957	27,786	7,349	10,905	26.4	39.2	
Italy ¹ (1,000 m. lire)	1956	2,877.4	459.6	398.2	15.9	13.8	Expenditures for Social Welfare
	1957	3,025.9	496.1	381.7	16.4	12.6	
Japan ² (1,000 m. yen)	1956	1,089.7	143.0	138.7 ³ (367.0) ⁴	13.1	12.7 (33.7)	
	1957	1,184.6	144.3	148.3 ³ (402.4) ⁴	12.2	12.5 (40.0)	

Source:

TABLE 3

1. United Nations Statistical Year Book, 1959.
2. As for Table 1.
3. Item in column (C) corresponding to Japan represents social service expenditure in absolute terms excluding governmental pensions and education.
4. Item in parenthesis represents expenditures in absolute terms including governmental pensions and education.

Secondly, expenditure on the National Debt is very small, and is decreasing its ratio to the total expenditure. This contrasts with the heavy burden before and during the War, which amounted to an 16.8 % average from the fiscal year 1931 to the fiscal year 1945.⁵ The decrease of the national debt expenses is due chiefly to the rapid decrease in the money value caused by a severe inflation after the War which lightened the pressure of debt on the public finance. It is also due to the post-War Government policy that strictly restricted its management of its general expenditure by issuing a national debt. The ratio is extremely low if compared with heavy ratios in the United Kingdom and the United States of America, and much lower than that for Italy and France.⁶

The Local Finance expenditure represents the state subsidy towards the general revenues of local governments. Its increase reflects an increasing demand for the expenditures of local governments, and the increasing ratio of the state subsidy to the local governments. The problems of local finance lies in the discrepancies in the financial power of different local bodies, which reflect the regional imbalance in industrial growth. The problem relates to the dual structure of the economy, i.e., discrepancies of productivity, of industrial sectors and of agricultural sectors, and also, among different scales of industries. The problem relates to the wider problems of fiscal policies to achieve a balanced growth of the economy.

5. Public Finance White Paper for 1961, *ibid.*, p. 318

6. Public Finance White Paper for 1959, *ibid.*, p. 266.

The National Territory Security and Development chiefly represents expenditure for public works, such as flood control, road improvement, improvement of harbours, fishing ports, and airports, etc. After the War until around the fiscal year 1956, the majority of expense of public works was devoted to the prevention of and rehabilitation after natural disasters, but since then the improvement of roads, of harbours and fishing ports, etc., are coming to have a more important position. These public works are used to improve the fundamental base of industries, and are also useful as a method of compensatory fiscal policies. They also directly furnish opportunities of work for unemployed or under-employed. In Japan, the roads and other industrial facilities are not well developed, and their expansion will be needed in the future. The Industry Economy represents those expenditures on modernisation of agriculture, maintenance of stability of price of foodstuffs, modernisation of small and middle sized industries, on promotion of economic co-operation and exports, etc. These are mainly concerned with adjusting economic structure, and the problems it holds. The point I have clearly to mention here is that these expenditures, especially that of public works are on a tremendously rising trend and are expected to increase in the future. The interesting point is that these are the only expenditures which showed as nearly as great a rate as the growth rate of expenditures for social services. Social Services, as we have seen, have more than one-third of the total expenditure, if we include

governmental pensions and education services. This means that social service expenditures and the expenses of public works and some other complementary expenses for industry and economy, take up nearly 60 % of all public expense. The fact that both of them are increasing rapidly suggests to us that it will become the main issue of government expenditure policy whether to increase social services more, or whether to increase public works more, and in what rate should the former be increased in comparison with the latter.

We have so far analysed the weight of the social service expenditure in the national budget. But if we look at the actual mechanisms of the social service activities, especially the social insurance services, we find that this is not the full function of these services, nor the main function; because there exists a large amount of contribution revenue which comes directly from employers and employees and also the interest revenue of the reserves though the nature of this we are not going to discuss at the moment. These revenues, of course, do not appear in the Exchequer General Account revenue. Some of these revenues go back to the benefit receivers in the form of benefit payments. In other words, there exists a large amount of social service expenditure which is financed by these contribution revenues and/or interest revenues which, though may be very important, we cannot find in the analysis of the weight of social service expenditure in the national budget. Moreover, social insurance is usually compulsory; the government has ultimately a right to collect contributions through the

taxation authority, its finance being guaranteed by the government. The Exchequer Supplement has an important part in its finance, and also no risk adjustment exists. In view of these we know that its contribution is a form of taxation. In view of its vital importance we will consolidate these two accounts.

The consolidated account of the expenditure of the public sector and social insurance is seen in Table 4 (1), while the revenue side is seen in Table 4 (2). Thus the table shows that the actual position of the finance of social services in the national economy is far greater than the mere Exchequer General Account indicates. The table shows that if we try to see the actual position of the social service expenditures in the whole public expenditure, taking into consideration the important function of contribution and payment processes, we find that over one-fourth in the narrow sense (i.e., excluding governmental pensions and education) and over one-third in the wide sense (i.e., including these two) of all public expenditure is occupied by social services. This magnitude and this importance is rarely understood in full, because of the veiling effect of insurance resemblance mechanisms. But these figures, obtained after adjusting statistical figures for purposes of analysis, give us a clearcut idea of the importance of the social services. In addition, this is the expenditure side which does not include reserve mechanisms, the weight of which is considerable. This means that the weight of actual social service activities is still bigger than we have seen here. Moreover if we think of the increasing trend of the growth of social

CONSOLIDATED ACCOUNT OF PUBLIC SECTOR AND SOCIAL

INSURANCE EXPENDITURE, 1957

(1,000 m. yen)

Items	year	1957
1. Government Expenditure		1,137.5
2. Social Insurance Expenditure financed by Contributions.		208.1
3. Total Expenditures (1 + 2)		1,345.6
4. Government Expenditures for Social Services		148.3
5. Total Social Service Expenditure (2 + 4)		356.4
6. 5 as percentage of 3		26.5
7. Government Expenditures on Social Services including Governmental Pensions		246.2
8. Total Social Service Expenditure including Governmental Pensions (2 + 7)		454.3
9. 8 as percentage of 3		33.8
10. Government Expenditures for Social Services including Governmental Pensions and Education Services		402.4
11. Total Social Service Expenditures including Governmental Pensions and Education Services		610.5
12. 11 as percentage of 3		45.4

TABLE 4(1)

Source: Compiled from Expenditures of General Account Classified by Purposes, Budget Bureau, Ministry of Finance and Table 10.

CONSOLIDATED ACCOUNT OF PUBLIC SECTOR AND SOCIAL INSURANCE
REVENUE, 1950-1958.

(1,000 m. yen)

Items	year	1950	1955	1957	1958
1. Government Revenue		716.8	1,126.4	1,137.5	1,333.1
2. Social Insurance Contributions (etc.) ¹		96.5	289.7	334.9	388.3
3. Total Revenue of Public Sector (1 + 2)		813.3	1,416.1	1,472.4	1,721.4
4. Government Revenue for Social Services ²		46.6	137.9	148.3	163.0
5. Total Revenue for Social Services (2 + 4)		143.1	427.6	483.2	551.3
6. 5 as percentage of 3		17.6	30.2	32.8	32.0
7. Government Revenue for Social Services including Governmental Pensions ²		52.2	224.3	246.2	267.7
8. Total Revenue for Social Services including Governmental Pensions (2 + 7)		148.7	514.0	581.1	656.0
9. 8 as percentage of 3		18.3	36.3	39.5	38.1
10. Government Revenue for Social Services including Governmental Pensions and Education Services ²		74.2	351.5	402.4	434.7
11. Total Revenue for Social Services including Governmental Pensions and Education Services (2 + 10)		170.7	641.2	737.3	823.0
12. 11 as percentage of 3		21.0	45.3	50.1	47.8

- TABLE 4(2)
1. Obtained by deducting Government Revenue for Social Insurance from total Social Insurance burdens.
 2. Obtained from the expenditure figures of the General Account.

services, particularly the enlargement of social insurance according to the inauguration and the development of the National Pension Scheme, then we expect that this importance which seems to me already a vital magnitude in the national economy, will increase and grow further in the future. It is this vital importance and magnitude of its financial position that will unavoidably affect the money flow of the economy and, consequently, will have a considerable effect on the growth trend of the national economy.

We have seen the proportion of the social service expenditure to the national budget. But in order to see the rate of growth of social service expenditure in the growth of the national economy, the comparison with the growth rate of national income will be of use to us. The comparison of the rate of growth of social service expenditures with national income is shown in Table 5. The rate of growth of the national income of Japan after the second World War was very high. Total national income was more than doubled in real terms in the past decade and the government is planning to repeat it in the coming decade. (For a detailed analysis of the post-war economic growth, see Chapter V). However, the Table shows that during the period between 1950 to 1959 the social service expenditure has increased at a much faster rate on the average than that of national income, in spite of the latter's tremendous rise. The social service expenditure, excluding governmental pensions and education,

The Rate of Growth of Social Service Expenditures and National Income, 1950-1959.

(1,000 m. yen)

Item	Year	1950	1952	1955	1957	1959
1. National Income		3,381.5	5,084.8	6,670.9	8,341.0	9,991.2
2. Percentage (1950 = 100)		100.0	150.4	197.2	246.6	295.4
3. Social Services		46.6	107.2	137.9	148.3	196.3
4. Percentage (1950 = 100)		100.0	230.0	295.9	318.2	421.2
5. 3 as percentage of 1		1.4	2.1	2.1	1.8	2.0
6. Social Services including Governmental Pensions		52.2	116.8	224.3	246.2	301.1
7. Percentage (1950 = 100)		100.0	223.7	429.6	471.6	576.8
8. 6 as percentage of 1		1.5	2.3	3.4	3.0	3.0
9. Social Services including Governmental Pensions & Education Services		74.2	153.0	351.5	402.4	485.2
10. Percentage (1950 = 100)		100.0	206.1	526.9	542.3	653.9
11. 9 as percentage of 1		2.2	3.0	5.3	4.8	4.9

TABLE 5

Source: National Income is from the Public Finance White Paper, 1961.

Other expenditure items from 1950-1955 and 1959 are obtained from Table 2.
Those for 1957 are compiled from the Expenditures of General Account Classified
by Purposes, Budget Bureau, Ministry of Finance.

has increased over 40% more than that of the rate of growth of national income.

Last of all, the weight of transfers in personal income is shown in Table 6. The Table shows that transfer income to personal income corresponds to around 5 to 6%, and the ratio is rapidly increasing. The rate of growth of transfer income is showing a very rapid rate of 9 to over 13%. Thus the growing significance of the transfer sector in the income structure of the economy is observable.

Through all the analyses we see the significant position of social services in the national economy, and the undeniable tendency towards an increase in its position, not only in its absolute amount, but also in its relative significance. We see clearly a growing significance of social services in a growing trend of national economy.

Section 4 Social Insurance and Pension Insurance

This section deals with the place of the finance of social insurance in the whole social service structure, and the place of the finance of pension insurance in the social insurance structure.

First of all the trend of the composition of social services is shown in Table 7. The Table shows firstly, that each item of assistance services, general community services, and social insurance services is increasing in absolute amount; secondly, the weight of community services is very great, although decreasing in the percentages; and thirdly, the weight of social insurance services has increased rapidly both in

Transfer Income and Personal Income, 1957-1959

Items	Year	Amount (1,000 yen)			Composition (%)			% of Previous Year ¹		
		1957	1958	1959	1957	1958	1959	1957	1958	1959
1. Labour Income (origination)		4,150	4,373	4,654	54.6	55.9	56.3	111.5	105.4	106.4
2. Less: Social insurance contribution		211	220	248	2.8	2.8	2.8	119.1	104.4	112.7
3. Labour income (receipts) (= 1 - 2)		3,939	4,153	4,406	51.8	53.1	53.3	112.0	105.4	106.1
4. Personal business owners' income (origination)		2,834	2,795	2,874	37.3	35.7	34.7	104.9	98.6	102.8
5. Less: National Health Insurance Contributions		18	22	26	0.2	0.3	0.3	108.1	123.6	118.2
6. Personal business owners' income (receipts) (= 4 - 5)		2,816	2,773	2,848	37.1	35.4	34.4	104.9	98.5	102.7
7. Personal rent income		127	134	151	1.7	1.8	1.8	114.0	105.8	112.7
8. Personal interest income		261	279	313	3.4	3.6	3.8	119.5	107.1	112.2
9. Personal dividends income		133	145	162	1.8	1.9	2.0	85.4	109.0	111.8
10. Net income from abroad		39	48	54	0.5	0.6	0.7	-	-	-
11. Less: interest on debts of government and consumers		25	26	28	0.3	0.3	0.3	114.0	106.1	107.7
12. Transfer income		382	418	475	5.0	5.3	5.7	109.0	109.3	113.6
13. Total (Personal Income)		7,594	7,828	8,273	100.0	100.0	100.0	108.6	103.1	105.7
14. Personal tax and burdens other than tax		419	411	436	5.5	5.3	5.3	93.1	98.2	106.1
15. Personal consumption expenditure		5,877	6,170	6,510	77.4	78.8	78.7	108.1	105.0	105.5
16. Net remittance to abroad		14	14	15	0.2	0.2	0.2	-	-	-
17. Personal savings		1,313	1,261	1,342	17.3	16.1	16.2	117.3	96.1	106.4
18. Disposable Personal Income		7,176	7,417	7,837	14.5	94.7	94.3	109.7	103.4	105.7

Table 6

1. " % of Previous Year" shows a comparison with the Previous Year, and not % increase of the Previous Year.

Source: Economic Outlook for the Fiscal Year, 1959 - Unpublished Reference Material, The Economic Planning Agency.

The Composition of Social Service Expenditure, 1953-1959.

(1 m. yen)

	1953	1954	1959
1. Assistance Service ²	40,163 (33.7) ¹	49,468 (38.2)	62,370 (34.3)
2. General Community Service ² (Excl. Education)	55,584 (46.6)	55,600 (42.9)	68,299 (37.5)
3. Social Insurance (Excl. Governmental Pension) ²	23,533 (19.7)	24,420 (18.9)	51,373 (28.2)
4. Social Service ² (1 + 2 + 3)	119,280 (100.0)	129,488 (100.0)	182,042 (100.0)
5. Assistance Service (= 1) ³	40,163 (14.1)	49,468 (15.1)	62,370 (13.1)
6. Education ³	108,088	118,194	179,112
7. General Community Service (Incl. Education) ³ (2 + 6)	163,672 (57.5)	173,794 (53.1)	247,411 (51.9)
8. Governmental Pension ³	57,094	79,714	115,450
9. Social Insurance (Incl. Governmental Pension) (3 + 8) ³	80,627 (28.3)	104,134 (31.8)	166,823 (35.0)
10. Social Service ³ (5 + 7 + 9)	284,462 (100.0)	327,396 (100.0)	476,604 (100.0)

TABLE 7

1. Throughout the table the figures in the parenthesis are percentages of the total.
2. Social service excluding governmental pensions and education service.
3. Social service including governmental pensions and education service.

Source: Compiled from the expenditures of General Account Classified by Purposes, Budget Bureau, Ministry of Finance; and A Handbook for Budget Administration, 1959.

absolute amount and in its proportions to the whole social service expenditures. In only 5 years from 1954 to 1959, the social insurance expenditure was slightly more than doubled and increased by more than 9% in its percentages to the whole social service expenditures. (See item 3 in Table 7). The weight of social insurance services in the whole social service expenditures is considerably large, though not so large as the general community services. Yet the social insurance services are most remarkably increasing, both in absolute amount and in comparative percentages. In view of the present Japanese status, this trend is likely to continue from now on.

Now let us consolidate these statistics with those of contribution and benefit payment of social insurance, because, so long as we acknowledge that the contribution revenue of social insurance is a kind of tax, there is no reason why we should separate these figures from the others and discuss only expenditure items on the national budget. By so doing, we can see the place of social insurance much clearer than we are now able to do. This is shown in Table 8. If we consolidate the contribution and payment account into the whole government expenditure structure, we find that the total expenditure for social services in the narrow sense, i.e., excluding governmental pensions and education, is over tripled, and in the wide sense, i.e., including these two, is nearly doubled. This simply reflects the fact that the con-

COMPOSITION OF SOCIAL SERVICE EXPENDITURES, 1958

ITEMS	1 m. yen (%)
1. Assistance Service	59,028 ¹ (10.7) ²
2. General Community Service (Excluding Education)	66,220 ² (12.0) ²
3. Social Insurance financed by the Exchequer (Excluding Governmental Pension)	37,721
4. Social Insurance financed by Contribution and Interest Revenue	388,265
5. Social Insurance Expenditure in total (3 + 4)	425,986 ² (77.3) ²
6. Social Service (Excluding Governmental Pension and Education) (1 + 2 + 5)	551,234 (100.0)
7. Assistance Service (=1)	59,028 ³ (7.2) ³
8. Education	166,981 ³ (28.3) ³
9. General Community Service (Including Education)	233,201
10. Governmental Pension	104,717
11. Social Insurance Expenditure in total (Including Governmental Pension) (5 + 10)	530,703 ³ (64.5) ³
12. Social Service (Including Governmental Pension and Education) (7 + 9 + 11)	822,932 (100.0)

TABLE 8

1. For each item in the table the first row of statistics represents expenditure in absolute terms.
2. For items 1, 2, and 5, in the table, the second row of statistics in parenthesis represents expenditure in absolute terms as a percentage of total social service expenditure excluding Governmental Pension and Education, i.e. Item 6.
3. For items 7, 8, and 11, in the table, the second row of statistics in parenthesis represents expenditure in absolute terms as a percentage of item 12 of total social service expenditure including Governmental Pensions and Education, i.e. Item 12.

Source: Compiled from the Social Security Statistical Year Book, 1958, and the Expenditures of General Account Classified by Purposes, i b i d.

tribution and payment amount has a decisive weight in the place of social service expenditures. In this consolidated account, expenditures for assistance services correspond to about 10% , that of general community services 12% , and more than 77%, i.e., more than three quarters of the social service expenditures, are occupied by social insurance expenditures. This is the magnitude of the finance of social insurance in the social services, that affects the growth of the economy.

Last of all we will analyse the place of the finance of the pension insurance in the whole social insurance structure.

Social insurance services are classified into four different categories. First is the medical insurance: which guarantees against illness, injuries and death. The second category is the unemployment insurance; third, the accidents compensation insurance against industrial injury. The fourth category is the pension insurance against old age, survivors and disabled; the first of which is the most important in the pension insurance.

We have to mention here the special difficulty which confronts us in our analysis. This is the complexity of the schemes, of their regulations and of their accounts. It is this complexity that prevented the development of the study of the social insurance in the field of economics and that also makes our analysis difficult.

Fourteen Public Pension insurance schemes exist now, which are controlled by eight government departments, independently. The main schemes are the National Pension Schemes for people

at large, who are not covered by existing public pension schemes, which have just started collecting contributions in April, 1961, and the Welfare Pension Insurance Scheme for general employees working in firms where five employees or more are constantly employed. (The number of people insured by the present Welfare Pension Insurance Scheme is 10.4 million, which means 72 % out of 14.5 million insured by one of the other of the public pension schemes in 1959; which also corresponds to 11% of the 92.5 million population.¹ The number of people who are supposed to be covered by the new National Pension Scheme is about 26 millions.² Therefore, most of the finance of the public pension scheme is focussed on these schemes. The National Pension Scheme is regulated by the National Pension Act of 1959, the Welfare Pension Insurance Scheme by the Welfare Pension Insurance Act of 1941. The financial management of the Welfare Pension Scheme is carried out by the Welfare Insurance Special Account with two other health insurances' accounts. We have to get the figures to classify them according to their function. Yet, because of the practical difficulty of obtaining suitable statistics, the work also is very restricted. The Seamen's Insurance Act is an all-in-one regulation for seamen which guarantees not only pension payments, but also medical care, unemployment and accident compensation. In order to

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1. Social Security Almanac, 1960. Table 16.
 2. Welfare White Paper, 1959, p. 79.

compare the weight of pension insurance in social insurance structure, we have to derive an adequate figure from an obscure paper of the account of the scheme. The same difficulty is applicable to other four Mutual Aid Associations, i.e., National Public Service Mutual Aid Associations, Public Corporation Employees (etc.) Mutual Aid Associations, Mutual Aid Association for Staffs of City, Town and Village, and that for Teachers and Employees in private schools. Because these schemes supply not only pension payments for old age, disabled and survivors, but also medical benefits and so forth, we have to distinguish the one figure from the other.

The next category is the six governmental pension schemes. These are the National Public Service Governmental Pension, Local Public Service Governmental Pension, Governmental Pension Society for Staffs of Town and Village and some other transitional small schemes. As we have already seen that the governmental pensions have speciality in nature and also have a significant magnitude, we will treat them separately from other public pension schemes in the first place.

If we take the expenditure account of the social insurance schemes of the fiscal year 1957, (See Table 9), we know that the pension insurance, excluding governmental pensions, occupies about 10 % of the total social insurance expenditure. The weight of it is much smaller compared with the Health Insurance expenditures, which represent over 70 % of all expenditures, yet is bigger than the Unemployment Insurance and Accidents Compensation Insurance, which represents about 10 and 8 % respectively. Moreover if we

Composition of Social Insurance Expenditures, 1957.

(1 m. yen)

	Expenditure Excluding Governmental Pensions	Percent- ages	Expenditure Including Governmental Pensions	Percent- ages
1. Total Social Insurance	294,820	100.0	392,676	100.0
2. Pension Insurance	31,493	10.7	129,394	33.0
3. Health Insurance	209,147	70.9	209,147	53.3
4. Unemployment Insurance	29,399	10.0	29,399	7.5
5. Accidents Compensation Insurance	24,736	8.4	24,736	6.3

TABLE 9

Source: Compiled from Table 10.

include Governmental Pensions in social insurance the weight of the pension insurance rises to a little over 33%, i.e., just about one third of all social insurance expenditures. The weight of the Health Insurance decreases to 53.3%, still representing the majority of expenses, and Unemployment and Accidents Compensation insurance to 8 and 6% respectively.

We have to bear in mind that this is only the expenditure figure and does not represent the revenue figure. In other words it does not show the excess of revenue over expenditure, i.e., the reserves which occupy a considerably important part in the pension insurance schemes. For example, the total revenue of the Welfare Pension Insurance shows ¥ 57.5 thousand million compared with ¥ 9.3^{thousand}/millions of benefit payment, creating ¥ 48.2 thousand million in excess of revenue. We can easily imagine that the weight of the pension insurance is much bigger on the revenue side than is seen on the expenditure side. Moreover the pension insurance started much later than health insurance. For example, the Welfare Pension Insurance started in 1941, compared with the health insurance, which started in 1922. This implies that so far as the pension insurance is concerned, the payments are not yet fully operational.

The number of the insured by the pension insurance differs greatly from that of the health insurance. In 1959, the pension insurance was 14,454 thousand, representing 69.2% of employees, and only 15.6% of the total population, but those covered by the health insurance was 75.9 million, composed of 15.5 million employees, 23.0 million of their families and 37.3 million of general citizens covered by the National Health Insurance, which represents

82.1% of the total population. This is chiefly the result of the government's efforts to enlarge the number of the insured of the health insurance for recent years and it is planned to achieve 100% coverage before 1970. Because of these movements, and the enlargement of the number of the insured, the cost of the health insurance is increasing and has shown the above mentioned figures.

However, the government has started a new National Pension Scheme. This covers nearly all those who are not covered by the other existing public schemes. The finance of the scheme is expected to grow rapidly within a decade or two. Although the health insurance occupies the most important place in the whole social insurance expenditure at present, the pension insurance, which already is considerably important at present, may become one of the main financial problems in the social insurance services as is the case in many other developed countries. The position of pension insurance and other social schemes are seen in Table 9, while the composition of social insurance expenditure is shown in Table 10.

Composition of Social Insurance Expenditures Classified by Schemes
and Categories, 1957.

(1 m. yen)

	Expenditure for Pension	Expenditure for Health Insur- ance	Expenditure for Unemployment Insurance	Expenditure for Accidents' Com- pensation Insurance	Total Expendi- ture for Social Insurance
1. Welfare Pension Insurance	9,343	-	-	-	9,343
2. Seamen's Insurance	652	3,000	232	-	3,884
3. National Public Service, Mutual Aid Association	4,633	21,085	-	-	25,718
4. Public Corporation etc. Employees Mutual Aid Association	16,254	16,037	-	-	32,291
5. Mutual Aid Associations for Staffs of City, Town and Village	370	3,762	-	-	4,132
6. Mutual Aid Association for Teachers and Employees in Private School	236	696	-	-	932
7. Schemes which include pension insurance (excluding Governmental Pension) (1+2+3+4+5+6)	31,488	44,580	232	-	76,300
8. Governmental Pension (for Civilians)	17,434	-	-	-	17,434
9. Governmental Pension (for Soldiers, Survivors, etc.)	79,195	-	-	-	79,195
10. Governmental Pension (others)	1,272	-	-	-	1,272
11. Total Governmental Pension (8+9+10)	97,901	-	-	-	97,901
12. Schemes relating to pension insurance (including Govern- mental Pension) (7+11)	129,389	44,580	232	-	174,201
13. Health Insurance	-	65,247	-	-	65,247
14. Day Labourers' Health Insurance	-	4,157	-	-	4,157
15. National Health Insurance	-	40,268	-	-	40,268
16. Unemployment Insurance	-	-	27,952	-	27,952
17. Day Labourers' Unemployment Insurance	-	-	1,215	-	1,215
18. Accident Compensation Insurance	-	-	-	24,736	24,736
19. TOTAL (excluding Governmental Pension) (7+13 or 18)	31,488	154,252	29,399	24,736	239,875
20. GRAND TOTAL (Including Govern- mental Pension) (11 + 19)	129,389	154,252	29,399	24,736	337,776

TABLE 10

Source: Compiled from the Social Security Statistical Year Book, 1958. See Also Appendix.

APPENDIX TO CHAPTER I

1. Techniques and Assumptions in Table 10.

The techniques and assumptions adopted to derive the figure in Table 10 are as follows. So far as I know there exist no comprehensive statistics which show clearly the financial position of the pension insurance with other social insurance services, except very simple figures in the budget or the very complicated financial accounts of each individual scheme, of which there are no less than ten. The trouble exists fundamentally with the complicity of social insurance schemes themselves, secondly with the complicity in their accounting systems and the failure of the government departments concerned to offer adequate statistics suitable for the purpose of economic analysis of the social insurance.

The main problem is that in many independent schemes, the finance of these three or four types of social insurance services are mixedly managed and we have to make some assumptions to divide them one from the other. For that purpose the figure of the "Expenditure for Pension" of the Seaman's Insurance is taken from the expenses for the pension payment and the expenses for the Welfare Facilities and Management Cost, the latter of which was assumed to be divided proportional to the expenditure for pension payment against the expenditure for other social insurance benefit payments.* The expenditure for the health

* Calculation Example.

A = Pension expenditure = ¥ 602m.

B = Expenditure for sickness benefit and unemployment benefit = ¥ 2,985m.

C = Total benefit payment = A + B = ¥ 3,587m.

D = Expenses for the Welfare Facilities and Management Cost = ¥ 297m.

E = Expenditure assumed to be used for the interest of the pension beneficiaries = $A + D \times \frac{A}{C} = 602 + 297 \times \frac{602}{3587} = ¥ 652 \text{ m.}$

insurance and the unemployment insurance were obtained by the same method.

The pension figure for the National Public Mutual Aid Association is taken from the figure for the pension payment obtained in the long term payment (pension) account plus a part of the management account expenditures. The latter was divided in proportion to the expenditure amount of the long term payment (pension) account and the short term payment (medical care) account. In obtaining the figures for the Public Corporation Employees (etc.) Mutual Aid Associations, the same assumption to assign the expenditure of the management account in proportion to the expenditure amount of the pension payment is adopted.

As to the figures of the governmental pensions, because of the difficulty of getting figures for several transitional schemes and of the smallness of these figures, we classified them into main "governmental pensions" for qualified civil service and also that for the ex-soldiers and survivors etc., and the rest we listed just as "others".

By these assumptions and method we obtain Table 10, which shows the position of each social insurance expenditure in much more detail than the former table (i.e., Table 9) from which our simplified Table 9 was acquired.

Chapter II. WELFARE PENSION INSURANCE SCHEME

AND NATIONAL PENSION SCHEME

Section 1. Introduction

The object of this chapter is to analyse the place of the finance of the Welfare Pension Insurance Scheme and the National Pension Scheme, and the mechanisms by which they affect the growth paths of the national economy.

Section 2 is concerned with preparatory explanations. The significance of the Welfare Pension Insurance Scheme and the National Pension Scheme in the whole pension insurance schemes is shown in the number and nature of the insured, and in the financial magnitudes both from the revenue side and the expenditure side.

Section 3 is concerned with clarifying the financial mechanism of the Welfare Pension Insurance Scheme with special reference to its relation with the Special Accounts system. A brief outline of the Scheme, an outline of the Special Accounts system, and the analysis of the Welfare Insurance Special Account and its Sub-Accounts are given and illustrated by flow of funds diagrams. The importance of the surplus formation at the present stage of the Scheme and the urgent necessity of tracing the surplus fund transferred to the Trust Fund Bureau Special Account is stated.

Section 4 deals with the analysis of the surplus fund supplied by the Scheme. The surplus fund is deposited in the Trust Fund Bureau Special Account and is invested with other funds according to the Fiscal Investment and Loan Programme. Therefore, first, the source and the use of the funds /

funds of the Fiscal Investment and Loan Programme, with the past trend and its economic implications, are mentioned. Special reference is made to the relation between the Trust Fund Bureau Special Account and the Fiscal Investment and Loan Programme. Then the source of the Trust Fund Bureau Special Account funds is analysed. The trend towards increasing importances of the Welfare Pension Insurance Scheme reserves in the revenue of the same Special Account is noted. An explanation of the utilization of a certain proportion of the Welfare Pension Insurance Scheme Surplus for welfare facilities is given. Then an assumption is adopted that the surplus fund is, excepting the specially decided part above mentioned, allocated proportionally to several industrial sectors (etc.) as the total allocation of the Trust Fund Bureau funds indicate. The financial mechanism of the Welfare Pension Insurance Scheme in relation with the Trust Fund Bureau Special Account and the Fiscal Investment and Loan Programme, and also with several industrial sectors, etc., is shown with the aid of flow of funds diagrams and tables used for explanatory purposes.

In addition, a consolidation of the financial mechanism of the Welfare Pension Insurance Scheme into the wider relation between the Trust Fund Bureau Special Account and the private and the public sectors, which are the receivers and payers of the loan and interest payments, is made with the aid of a flow of funds diagram. The result is classified in a social accounting representation.

Section 5 deals with the analysis of the finance of the National /

National Pension Scheme. A brief outline of the Scheme, its financial administration, its revenue and expenditure, and a comparison of its financial magnitudes with those of the Welfare Pension Insurance Scheme are given. A future function of the Scheme is explained with the aid of a flow of funds diagram. Following the introduction of the future revenues and expenditures^Y of the Scheme, analysis is made of the adequacy of the assumptions adopted in the estimates. Last of all, an abstract flow of funds diagram is presented connecting the analysis of the present chapter to the demand analysis of the next chapter.

An additional explanation of the Accounts and the interest revenue of the Welfare Insurance Special Account is given in Appendices to this Chapter.

Section 2. Preparatory Explanations.

In this chapter, we will restrict ourselves more narrowly to the study of the Welfare Pension Insurance Scheme and of the newly started National Pension Scheme. Before going into an advanced discussion, we must again show the place and the significance of the Welfare Pension Insurance and the National Pension Schemes in the pension insurance structure. The most convenient way is to look at the numbers of the insured covered by these public pension /

pension insurance schemes.

If we take the figure for October 1958, we see that the total of insured population by the public pension insurances is slightly over 12 millions, and nearly 11 million or more than 85 per cent of these are covered by the Welfare Pension Scheme. The next largest item is the Public Corporation (etc.) Employees Mutual Aid Association, which has only 754 thousand and which represents only 6 per cent of the total. The others are still smaller and are of negligible significance. If we take governmental pensions into account, the total number of the insured reaches 14 million which is about 76 per cent of the total working population of 20 millions. Even in this case the Welfare Pension Insurance Scheme represents nearly 75 per cent of the total, far bigger than any other single scheme and also the total of all other schemes. As to the National Pension Scheme, which has just started in April 1961, approximately 26 million people were expected to be covered by the new scheme. This figure is more than double the number insured by the Welfare Pension Insurance and also the total number of all other schemes. Thus from the point of view of the number of the insured, it is clear that the Welfare Pension Insurance and especially the National Pension Scheme occupies the most important position in the whole pension insurance structure. The figures of the number of the insured and their percentages are /

are shown in Table 1.

Before looking at the financial significance of the scheme, we must look at the operational differences of the Welfare Pension Insurance, the National Pension Scheme and other schemes.

The Welfare Pension Insurance is the pension scheme for general workers employed by firms (or working places) regularly employing a total of five persons or more¹. It is restrictive in the sense that it does not cover all employees universally, but restricts itself to those who are working in a certain size of firm. It is, however, a general scheme in the sense that the insured are general workers and not employees of any specific category.

The Seamen's Insurance is an all-in-one insurance scheme specifically for seamen and employees in private shipping enterprises. The National Public Service Mutual Aid Association is for workers in the Central Government² and the Public Corporation Employees(etc.)Mutual Aid Association

1. Social Security Almanac for 1960, edited by Health Insurance Association, Toyo Keiza Simpo Co., February, p. 67.

2. The application of the scheme was restricted to those who were not qualified to receive governmental pensions. However, by the amendments of the Act in 1959, the long term benefits part, (i.e. pensions, etc), came to be applied to all government officials. The rights of the governmental pension receivers are guaranteed.

Table 11: Number of Insured in Pension Insurance

(At end of Oct., 1958)

(1,000 persons)

Schemes	Items	Number	Percentage to 7	Percentage to 10
1.	Welfare Pension Insurance	10,501	86.3	74.9
2.	Seamen's Insurance	208	1.7	1.5
3.	National Public Service Mutual Aid Association	499	4.1	3.6
4.	Public Corporation etc. Mutual Aid Association	754	6.2	5.4
5.	Mutual Aid Associations for Staffs of City, Town and Village.	129	1.1	0.9
6.	Mutual Aid Association for Teachers and Employers in Private School	76	0.6	0.5
7.	Total Pension Insurance (Excluding Governmental Pensions) (1-6)	12,167	100.0	86.8
8.	Governmental Pension Union for Staffs of Town and Villages	246		1.7
9.	Governmental Pensions	1,607		11.5
	Sub-Divisions (1) State	659		4.7
	(2) Local Government	948		6.8
10.	Grand Total (7+8+9)	14,020		100.0
11.	Number of Employees	19,830		
12.	Percentage (10/11)	71.6%		

TABLE 11
1. Statistics are at the end of Oct., 1958.

Source: Number of Insured from Public Finance White Paper
1959. p. 192.

is specifically for those employed in the three Public Corporations, i.e., the National Railway, the Telegram and Telephone, and the Monopoly Corporations, also partly (i.e., short term benefit part) for the enterprise sectors of the government, e.g., Printing Bureau, Mint Bureau, etc. Other mutual aid associations and governmental pension schemes are the same in this sense, that they are the schemes for only a specified category of people.

As to the National Pension Scheme, it is expected to cover all citizens who are not covered by the existing public pension schemes, except those who are too old to be covered by the contributory schemes. It is the most general scheme.

From this consideration of the nature of the insured we conclude that the Welfare Pension Insurance and the National Pension Scheme are by far the most important, not only by the mere number of the insured, but also by the fact that these schemes are general in their nature, and do not confine themselves to a special category of occupations as do the other schemes.

To see the significance of the scheme we must next look at the magnitude of its finance. If we take the fiscal year 1957, we find that the total revenue of the Welfare Pension Insurance was over ¥57 thousand million of the total of ¥90 thousand million for all pension insurance schemes, /

schemes, (excluding Governmental Pensions), representing more than 60 per cent of all.

If we look at the contribution revenue, the percentage of the Welfare Pension Insurance rises to 80 per cent of the total, comprising ¥43 thousand million out of ¥54 thousand million. The second biggest item is that of the Public Corporation(etc.) Employees Mutual Aid Association, which represents only 10 per cent. Other items are negligible. This figure indicates that the scope and coverage of the Welfare Pension Insurance is much bigger than others.

If we take the interest revenue of the Welfare Pension Insurance, it also represents nearly 70 per cent or ¥12 thousand million out of a total of ¥18 thousand million. The second and third item is that of Public Corporation(etc.) Employees Mutual Aid Association and the National Public Service Mutual Aid Association, which represent 16 and 14 per cent respectively, i.e. much less than that of the Welfare Pension Insurance. Other items are negligibly small. This shows the scale and importance of the Welfare Pension Insurance Reserves, the balance of which reached ¥328 thousand million in 1957.

But if we take the figure of the Exchequer Supplement, we find that the Welfare Pension Insurance does not have
so /

so big a portion, representing only about 12 per cent of all and less than that of the Public Corporation (etc.) Employees Mutual Aid Association which occupies about half of all, and also less than that of the National Public Service Mutual Aid Association, which represents slightly over one quarter of all.

But we must mention here that a large part of the item for the Exchequer Supplement of the National Public Service Mutual Aid Association and the Public Corporation Employees (etc.) Mutual Aid Association in this table is composed of the payment by the government as employers, partly because of the difficulty of obtaining statistics of net Government Supplement, excluding state's contribution as employers, and partly because we can understand inflow and outflow of money from government to private sector.

We have also to draw attention to the fact that the rate of the Exchequer Supplement is decided as a proportion of the expenditure of the benefit payment and not of the contribution revenue. The Welfare Pension Insurance started in 1941. The full insurance period for the old age pension is, in general, twenty years. Therefore the present pension payment by the same scheme is much lower than that expected in the future, when the benefit payment will become fully operational. When we take these factors /

factors into consideration, we can see that the position of the Welfare Pension Insurance is more important than the past statistics alone would indicate.

On the expenditure side, we find that the total expenditure by the Welfare Pension Insurance is slightly over ¥9 thousand million, representing more than 40 per cent of total expenditures of ¥22 thousand million, in spite of the above mentioned fact that the scheme is not in full operation.

If we take the figure for Reserves, we find that the reserve accumulation by the Welfare Pension Insurance is more than ¥48 thousand million, representing 70 per cent of all reserves of ¥69 thousand million. The second item is ¥12 thousand million by the Public Corporation Employee (etc.) Mutual Aid Association, i.e. less than 18 per cent. The third item is ¥6 thousand million by the National Public Service Mutual Aid Association, - only about 8 per cent.

If we consider the importance of the reserves of the pension insurance in the whole national economy, which we will analyse later in detail, along with all other factors we have examined so far, we must admit that the Welfare Pension Insurance is by far the most important of all existing public pension insurances, (at this examined year.)

As to the National Pension Scheme, which started in April /



April, 1961, it is estimated that the contribution revenue will be ¥25 thousand million per annum. Interest revenue ¥1 thousand million per annum, Exchequer Supplement ¥13 thousand million per annum, totalling ¥39 thousand million, which represents total reserve for the initial year, the fiscal year 1961. This figure implies that of contribution revenue, total revenue, and also reserves, it is by far the second biggest item, next to Welfare Pension Insurance, and as to the Exchequer Supplement, it is by far the biggest item in all. Moreover the figure will grow rapidly; in the next decade annual revenue will double, while holdings of reserves will be fourteen times as great. Government estimates show that it will reach 3.6 billion yen in forty years time.³ This may have a fundamental importance on the Japanese economy.

It goes without saying that the Welfare Pension Insurance and the National Pension Scheme are by far the most important public pension insurance schemes, not only in coverage and nature, but also in magnitude and financial significance. This is the reason why we concentrate on the study of the finance of the Welfare Pension Insurance and the National Pension Scheme. The statistical figures

³. See Section 5 of the present Chapter.

representing these relations are listed in Table 12.

Section 3. Welfare Pension Insurance Scheme and Special Account System.

We will now consider the financial mechanism of the Welfare Pension Insurance, its position in the national economy of Japan and the impact it has on the economy.

Before going into the analysis of the place of the scheme in the economy, we must introduce a brief outline of the scheme itself. The scheme was established in 1941, for those workers who are employed in working places where five or more workers are employed. Public officials, seamen, and others covered by other public insurance schemes are excluded. Types of benefits are the old age pension, invalidity pension, invalidity allowance, survivors' pension and retirement pension, of which the old age pension is the most important.

The payments period for the old age pension is 20 years, 15 years in the case of underground miners. The pensionable age is 60 years, 55 years in the case of underground miners and females. The amount of the old age pension benefit consists of ¥24 thousand p.a. of flat rate basic pension, plus 0.5 per cent of the average monthly standard /

Current Account of Revenue and Expenditure of the Public Pension Insurance
Schemes, 1957.

(1,000 yen)

Schemes	Items	Contri- bution	Interest	Exchequer Supplement	Others	Total Revenue	Total Expenditure	Reserves
1. Welfare Pension Insurance		43,083 (79.8) ⁴	12,021 (68.6)	2,076 (11.6)	357 (46.9)	57,538 (63.7)	9,343 (43.3)	48,190 (69.9)
2. Seamen's Insurance ^{1,2}		1,564	87 ¹	62 ²	8	1,721	652	1,069
3. National Public Service Mutual Aid Association ³		2,830 (5.2) ⁴	2,420 (13.8)	5,011 (27.9)	62 (8.1)	10,328 (11.4)	4,596 (21.3)	5,727 (8.3)
4. Public Corporation etc. Employees Mutual Aid Association ²		5,473 (10.1) ⁴	2,719 (15.5)	9,926 (55.3)	327 (43.0)	18,472 (20.5)	6,359 (29.5)	12,113 (17.6)
5. Mutual Aid Associations for Staffs of City, Town and Village		421	145	721	-	1,288	370	918
6. Mutual Aid Association for Teachers and Employees in Private School		617	142	164	7	930	236	930
7. Total Pension Insurance (Excluding Government Pension)		53,988	17,534	17,960	761	90,272	21,556	68,947

TABLE 2

1. Obtained by dividing total interest revenue of the Seaman's Insurance according to the proportion of the contribution revenue for the pensions as against the whole contribution revenue.
 2. Obtained by dividing the Exchequer Supplement for the total expenses of administration and welfare facilities by the proportion of the Exchequer Supplement for the pension as against the whole Exchequer Supplement.
 3. Obtained from the Long Term Payment (Pension) Account, and not including the Business Management Account.
 4. The figures of the second row corresponding to Schemes 1, 3 and 4 are percentage to the total 7. These are significant items in magnitude.
- Source: Compiled from the Social Security Statistical Year Book, 1958.

standard emoluments multiplied by the number of months of the insured term of coverage. As to the monthly standard emoluments, the maximum is decided as ¥18 thousand, the minimum ¥3 thousand. Here we see a very interesting feature that the scheme is primarily an income proportional benefit payment system. In addition to these, ¥4.8 thousand is granted on behalf of the spouse and/or each child under eighteen, and/or each physically or mentally handicapped child, irrespective of age.¹

If we turn to the revenue side, we know that the scheme is financed firstly by the contribution of 3 per cent of the monthly standard emoluments equally shared by the employers and the employees; and secondly by the Exchequer Supplement which bears all the administrative cost and 15 per cent of the total pension payment. In the case of underground miners, the ratio of contribution amounts to 3.5 per cent, and the ratio of the Exchequer Supplement to 20 per cent. Here we again find a very interesting feature of the Scheme, i.e., that the revenue of it is also income proportional.

Thirdly, as to the reserves of the scheme, we find, as we have seen in the previous paragraph, that nearly all of the revenue of the scheme at present is left as reserves.

1. Social Security Almanac for 1960, ibid., p. 68.

Taking the available recent figures for the accumulation of reserves, we see ¥287 thousand million in the end of the Fiscal Year 1958. The net increase of the reserve is ¥54 thousand million, and ¥7.5 thousand million or 14 per cent of this has been utilized for the welfare of the insured as loans for the construction of hospitals, dwelling houses and other welfare facilities.² The net increase of the reserves is transferred and is deposited to the Ministry of Finance Trust Fund Bureau Special Accounts, which is one of the Government Special Accounts established to facilitate and illuminate government accounting. It is operated in the form of loans to key industries, loans to local government, and an aid to small and middle-sized industries, etc. Funds are allocated according to the Fiscal Investment and Loan Programme decided each year by the government with other public funds. The interest rate of the Deposit to the Trust Fund Bureau is about 6.5 per cent a year at present. Here we see the third feature of the Welfare Pension Scheme: that it adopts the reserve system and the fund is operated through government special accounts as a Fiscal Investment and Loan Programme to firms engaged in industry, agriculture etc., while a

2. Welfare Welfare White Paper, 1959. Ministry of Welfare, Printing Bureau of the Ministry of Finance, January 1960, p. 84.

certain amount is used for the welfare of the people.

As we see later in detail, the reserve fund of the Welfare Pension Insurance is deposited to the Trust Fund Bureau Special Account and managed with other state funds. Table 13 shows the growing significance of fund accumulation of the Welfare Pension Insurance in the whole fund of the Trust Fund Bureau. Table 4 shows an estimation of the future trend in income and expenditure of the Welfare Pension Insurance Scheme.

As we have the outline of the Welfare Pension Insurance, we can proceed to analyse its significance or its position in the national economy.

One of the quickest, simplest and clearest ways to show the place of the scheme in the economy will be to show it in a simplified diagram where we can trace the flows of income and expenditure of various sectors composing the scheme. We are utilizing this diagrammatical method simply to illustrate the financial mechanism clearer than by a mere explanation. We are concerned here with the mechanism by which money is taken from the Private Sector to the Public Sector and by which it goes back from one to the other, and by that process how the fund is reserved.³

³•The following analysis is based on the method shown in the flow of funds analysis of the British National Insurance Scheme by Peacock, A.T., in The Economics of National Insurance, *ibid.*, p. 37.

Accumulated Reserves of the Welfare Pension Insurance
in the Trust Fund Bureau Special Account

(1,000 m. yen)

End of Fiscal Year	Items	Total Fund of Trust Fund Bureau	Accumulated Fund of Welfare Pension Insurance	Percentages
1952		492.2	64.9	13.2%
1953		636.3	80.5	12.7%
1954		772.4	109.7	14.2%
1955		901.2	141.1	15.7%
1956		1,095.4	180.8	16.5%
1957		1,298.7	233.5	18.0%
1958		1,516.6	287.1	18.9%
End of January, 1959		1,665.4	326.2	19.6%

TABLE 3

Source: Financial Bureau, Ministry of Finance.

Estimation of Future Trends in the Income and Expenditure of Welfare Pension Insurance
(1,000 m. yen)

Fiscal Year	Items	Revenue			Expenditure		
		Contribution Revenue	Interest Revenue ¹	Exchequer Supplement	Total Revenue	Benefit Payment	Accumulated Fund
1959		65.1	17.4	1.8	84.3	11.6	360.6
1960		65.4	21.3	2.1	88.8	13.4	436.0
1961		65.5	25.4	2.4	93.3	15.6	513.8
1965		76.2	43.8	4.3	124.2	27.8	865.2
1970		82.9	71.9	7.0	161.8	45.5	1,402.1
1980		84.2	135.6	15.4	235.2	99.9	2,608.9
1990		45.0	194.6	29.5	309.1	193.1	3,693.0
2000		81.3	246.6	51.8	379.8	340.4	4,627.9
2020		81.9	256.9	62.4	401.1	410.1	4,794.5
2040		81.9	251.8	59.9	393.5	393.5	4,703.4

TABLE 14.

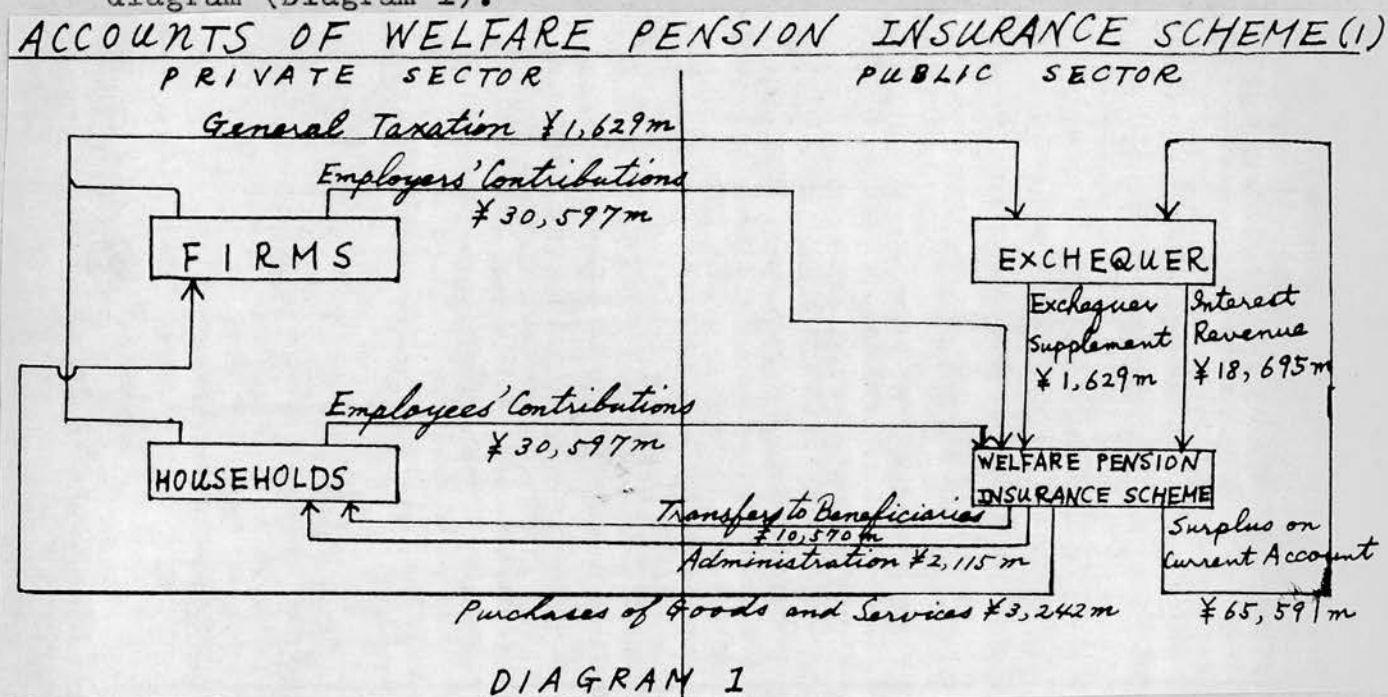
1. Interest is assumed to be 5.5 a year

Source - Ministry of Welfare.

We divide the Private Sector into "Firms" and "Households", and the Public Sector into "Exchequer" and "Welfare Pension Insurance Scheme". The separation of Insurance Scheme from Exchequer is of course artificial, but this enables us to see clearly how the Scheme functions. Nevertheless, the formation of this diagram accompanies a serious difficulty in obtaining the figures corresponding to the scheme. This is because the Welfare Pension Insurance does not take a form of an independent fund in Japan, but, instead, is managed in one of the Government Special Accounts, with the funds of two other health insurance schemes. The Special Account is divided into four Sub-Accounts and a part of the finance is shown as corresponds to each scheme, while a part is mixed among three schemes. Namely, in the Business Sub-Account - which deals administration of three insurances and the management of their welfare facilities - funds are mixed with the funds of other health insurances. However, the main part of the pension financings is managed by the Pension Sub-Account within the Welfare Insurance Special Account. Therefore, we will show, at the moment, how the scheme looks if it is seen from the government budget paper of the Pension Sub-Account. (We will show later how this will be altered when the Business Sub-Account is brought into consideration).

Moreover, /

Moreover, even showing the function of the Pension Sub-Account alone accompanies some difficulties. This is because the government account which has been formed according to tradition and administrative conveniences includes some ambiguous items. Particularly, the treatment of miscellaneous revenue, receipts from the Seamens' Insurance Special Account, and miscellaneous expenditure may involve some difficulty. How we treated them are shown in the Appendix to this chapter⁴. Then we can obtain the following diagram (Diagram 1).



⁴. We could only do this with the aid of internal statistics and information supplied from the Ministry of Finance from Mr. Kitada, since, even the most detailed publication, (Budget of the State, 1959. Budget Bureau, Ministry of Finance, Doyu-Shobo Co. Ltd., November 1959) does not give sufficient information to clarify these ambiguities.

We may be over simplifying by erasing all the complicated financial mechanisms between the government's Special Accounts relating the scheme. Nevertheless, the Diagram shows an approximate relationship between payments and receipts between the Pension Scheme and the Exchequer, and between the private sector and the public sector. Investment of the reserve is, however, not shown in the diagram nor how the interest revenue is financed. One feature of the Japanese system which differs from that of the United Kingdom is that we can trace on a certain assumption and at a certain level, the investment of these reserves. We have to consider this point later.

The commonly accepted prime object of national insurance is, of course, its function as a transfer mechanism, taking funds from private households and firms and giving them to those in need in the community, thus securing minimum standards of living to all components of the society and by doing so, maintaining a stable welfare state. But this diagram (1) shows that it is not the main function of the Welfare Pension Insurance at the present stage of the scheme. The figures for the Transfers to Beneficiaries and Administration occupy a very small proportion of the whole contribution and taxation revenue, and the main part is contained in the Surplus on Current Account, i.e. Reserves. Moreover /

Moreover this part of the fund goes back to the Exchequer in the form of a Deposit and is utilized for industrial purposes, etc. The key economic importance of the scheme at the present stage lies not in its transfer mechanism from firms and households to those people who are in need, temporarily or semi-permanently, but in its function of transfer from firms and households of private sector through government to those sectors as government enterprises and industry, the maintenance and development of which has come to be considered as political necessities of the nation. We will consider later the real meaning of this flow of funds to industrial sectors, etc.

Though interesting it may be, the previous analysis was over simplified in the sense that it did not show the complicated government Special Accounts mechanism in relation to the scheme. The Special Accounts mechanism is one of the features of the Japanese budgetary system; and in fact there exist intricate relationships between several Special Accounts, in that some of the money comes into one Special Account and goes out to the other Special Account, etc. Because of these complicated mechanisms, the function of the scheme is very difficult to grasp and can be easily concealed from the eyes of the public.

The Special Account system did not start for that purpose. /

purpose. Contrarily it started in order to show the financial mechanisms more lucidly. The following is a very rough outline of the Special Accounts system.

The present Finance Act, which regulates the main rule on the management of state financing, remarks that "the state can establish a Special Account by an Act only

- 1) when the state does a specific enterprise
- 2) when the state holds certain funds to operate
- 3) and when the state finances a specific expenditure out of a specific revenue, so that it is necessary to manage it separately from general revenues and expenditures."⁵

Because of the ambiguity of the expression of the Act, it does not show clearly what is the Special Account, and, in consequence, it allows governments to establish new Special Accounts rather easily whenever there occurs political necessity, or pressure from certain sectors of the community. It is convenient for the government if politically necessary, to separate a certain item of expenditure, because, by so doing, it could be taken out of the General Account, (which undergoes a far more strict check by the Treasury, by Parliament and also by the general public opinion).

5. Public Finance Act, Article 13, Item 2, 1947.

Without going further into criticisms of the Special Account system as a whole, the present status can be indicated. If we take the budget figure for the fiscal year 1959, we know the expenditure of the General Account is ¥1,570 thousand million, whereas that of the total Special Accounts amounts to ¥3,549 thousand million. The same figure for the Government Affiliated Organization, which represents 13 Government organizations, including 3 Public Corporations of National Railway, Telegram and Telephone and Monopoly, and other 10 Government Affiliated Organizations, is ¥1,383 thousand million.⁶ Though we admit these figures include a certain amount of double counting, this can be reasonably taken as showing the financial significance of the Special Accounts system. The numbers of the Special Accounts for the Fiscal Year 1959 reached 40⁷, representing the significance of the government sector and also the necessity of bigger intervention of the government in the national economy, directly or indirectly.

Existing Special Accounts can be divided into five groups, if we classify them according to the nature of the accounts or the main objectives they are expected to accomplish. Firstly there exists a group of Special Accounts, by which

6. Explanation of Budget for the Fiscal Year 1959, Budget Bureau, Ministry of Finance, January 1960, pp. 5 and 7. The figures indicate original projections.

7. Public Finance White Paper for 1959, *ibid.*, p. 67.

the state carries out a business. The National Hospital, The Post Office Savings, etc., belong to this category and there exist 11 of these.

Secondly there exists a group of Special Accounts, where the State controls the demand and supply of certain goods, etc. The Foodstuffs Control, Foreign Exchange Control and Precious Metals Control are examples. There are 6 of these Accounts. Thirdly there exist Special Accounts to manage government related insurances. The state either has public insurance or re-insurance against the danger of certain types of private insurance. The Welfare Insurance and Unemployment Insurance are examples. There are 12 of these.

Fourthly, there exist those groups where the state invests public funds and loan them. The Trust Fund Bureau Special Account is a typical example. There are 5 of these.

Fifthly, and lastly, there exist accounts to clarify the accounts of funds. These are the accounts which exist solely to clarify the receipts and expenditures of certain funds and do not invest nor loan by the same Account. There exist 6 of these.⁸

8. This classification is the one adopted by the government. More detailed explanations are given in Public Finance White Paper, ibid., pp. 67 - 71. The explanation of treating social insurance in the same category as the re-insurance by the state of the private insurance may not be adequate. However, this is simply to have a rough idea of the kind of Special Accounts, and therefore, criticism will not be mentioned.

By these methods of the Special Accounts system, the state can intervene and control or help, and sometimes lead, the economic development of the nation.

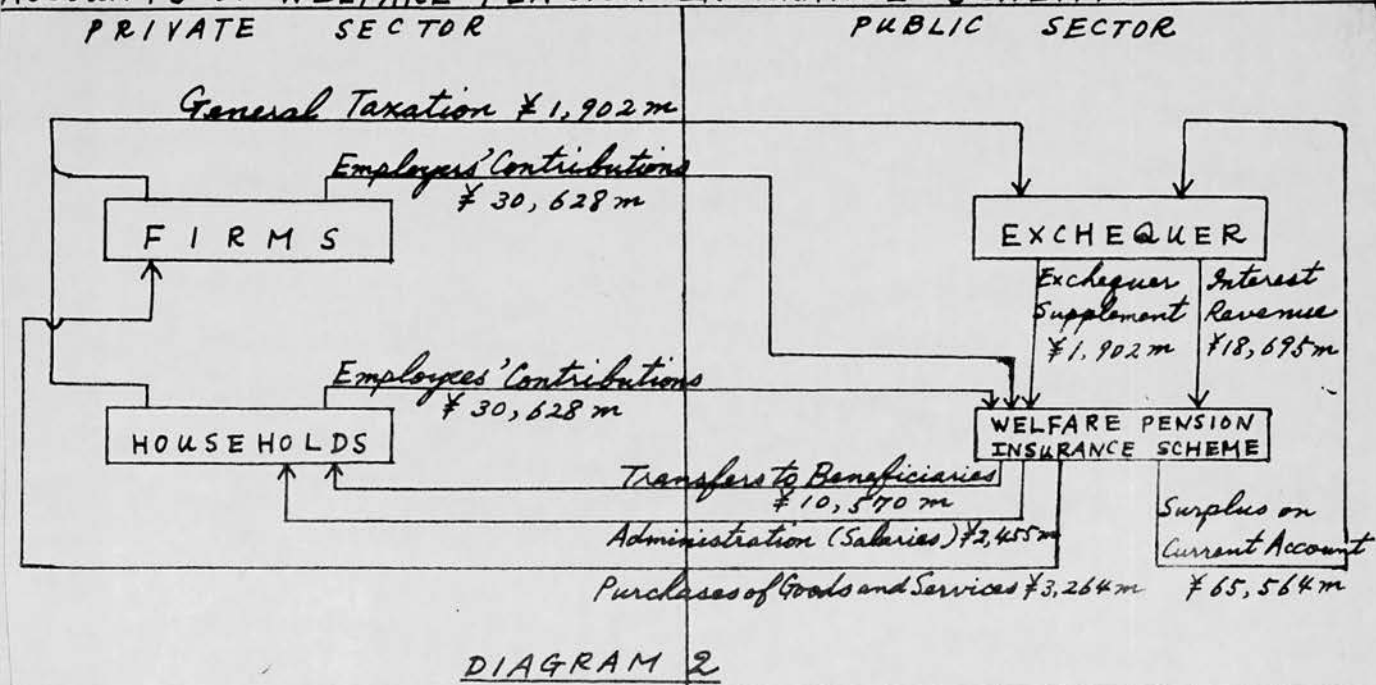
The Welfare Insurance Special Account belongs to the third category, where the state operates three of the public insurance schemes and makes clear the receipts and payments of the scheme. This Welfare Insurance Special Account is composed of four different Sub-Accounts. The first is the Health Sub-Account of the Health Insurance, which shows the revenue and expenditure of the Health Insurance, its relation with the General Account of the Exchequer and also with the business account of the same Welfare Insurance Special Account. The second is the Day Labourers' Health Insurance Sub-Account which shows its receipts and payments, including those from the General Accounts of the Exchequer and the Reserve Fund and its payments to the business account of the same.

The third, and the most important for us is the Pension Sub-Account. This is the account corresponding to the Welfare Pension Insurance Scheme though the administration as well as the management of welfare facilities are financed by the Business Sub-Account. On the one hand it receives revenue by contributions, by an Exchequer Supplement from the General Account (from general taxation), by receipts from the Seamen's Insurance Special Account, by interest revenue on the deposit /

deposit to the Trust Fund Bureau Special Account and by miscellaneous revenues. On the other hand, it pays the benefit payments, the transfer to the business account of the same Special Account, miscellaneous expenditures, and also the emergency reserve. We have analysed this Account in Diagram 1.

The fourth and last is the Business Sub-Account. This account deals with the administration of the three social insurance schemes and also with the management of welfare facilities. It receives revenue from the three Sub-Accounts above mentioned of the same Special Account, General Account, reserve fund, etc., and spending on the administration expenses, the construction of new offices, the expenses of houses and facilities for civil service (engaged in the administration), health facilities, welfare facilities, and other emergency reserves. If we isolate the items which clearly correspond to the finance of the Welfare Pension Insurance Scheme and if we classify the items, which cannot be divided distinctly, by dividing them proportional to the scale of the benefit payments of the three Sub-Accounts, and give necessary adjustments, we can derive the following diagram corresponding to the finance of the Welfare Pension Insurance Scheme.⁹ (Diagram 2).

⁹. For detailed treatments, see Appendix to this Chapter.



The complexity of the government system makes it very difficult to analyse and grasp the position of the scheme as it is. The inter-relation with the other Special Account, the revenue of which is also composed of the contribution, the Exchequer Supplement, Interest, Miscellaneous etc., (though the amount is negligible), makes it extremely difficult to trace the origin of the revenue of the scheme. Interchange of several Special Accounts obscures the function being achieved by the Welfare Pension Insurance. However, if we ask ourselves what is the economic function of the scheme, and what is the function which matters, much of the technical vagueness and complexity may be cleared. As to the inter Sub-Accounts relations, we may be able to reduce the complication and explain that the actual transactions of the scheme within the Government Sector, are carried out chiefly /

chiefly between the General Account of the Exchequer (which is the Revenue Account of general taxation of the Exchequer), the Welfare Insurance Special Account (which is the managing account of the Welfare Pension Insurance Scheme (as well as Health Insurance Schemes)), and the Trust Fund Bureau Special Account (which is the investing, loaning and fund operating account of the Exchequer). Furthermore, if we take away all the complication of the inter Exchequer Accounts transfers we come to see that the transfer mechanism in the normal sense, i.e., the function of taking the private sector and of giving it to households of those who are in need, is indeed very little; and that, as a financial impact, the part shown as the Surplus on Current Account, is vitally important in all. This is exactly what our new diagram (2) shows, is obtained after taking into consideration the corresponding parts of the Business Sub-Account, as the old diagram did as well. This item with a ruling importance is transferred to and deposited in the Trust Fund Bureau Special Account. This is the reason why we have to trace the use of the surplus fund in detail, and go on to the analysis of the Trust Fund Bureau Special Account in the next section.

Section 4. Trust Fund Bureau Special Account and Fiscal Investment and Loan Programme.

The Trust Fund Bureau Special Account is one of the government /

government accounts for the investment and loan of public funds. The importance of public investments and loans has been recently realised, partly because of their magnitude and partly because of the economic necessity of the nation to achieve a high rate of, possibly balanced, growth of national economy. Since 1953, all these activities have been combined in one scheme, called the Fiscal Investment and Loan Programme. So in order to describe the economic meaning of the Trust Fund Bureau Special Account and the place of the Welfare Pension Insurance Reserves in the investment and loan plan, we have to describe a rough outline of the Fiscal Investment and Loan Programme itself.

The Fiscal Investment and Loan Programme is the combination of the financial investment activities of the state, namely the government activities to supply investment funds in the form of fiscal investments and loans. These are the government activities to supply investment fund to the government or to government enterprises, to local governments and to the private sector, (industries, etc.), mostly via government financial organizations, in the form of fiscal investment and loan. They, however, do not include those expenditure items of the Exchequer General Account listed as Public Work.¹ The source and the use of funds of the Programme will be expounded in detail hereafter. These financial activities of the state do not need the approval of Parliament as is the case of the Budget, but the collection of the fund and its operation plan is submitted to the Houses of Parliament, together with a Budget, as

¹ See Suzuki, T. edit., Public Finance of Japan, Shiseido Co. Ltd., May, 1961. p. 296.

information for Parliamentary discussion.

The purpose of the Programme, together with those of other methods of fiscal policies, is to help the national economy to achieve a high rate of economic growth and other objectives. The Programme helps develop industries, to improve industrial fundamental facilities, to improve the housing situation and to develop small and middle sized industries. If those needs are met by private financing, the necessity of the state's intervention may be reduced. However, some need a large amount of fund (such as electricity), some accompany risk in collection (such as small sized industries), and usually long-term credit and low interest rates are required. This makes it very difficult to expect all the necessary fund to come through private financial organizations whose primary interest is in profitability. Because of these circumstances, the state justifies itself in utilizing funds which come through the Post Office Savings, taxation and even social security contributions, and in supplementing the private finance in quantity, and qualitatively by supplying funds where it is difficult to expect enough private money.²

². The explanation of this paragraph is based on the government explanation in Public Finance White Paper for 1959, *ibid.*, p. 92. The analysis here is limited to the introduction of the outline of the Programme. For criticisms on the working of the Programme, See Chapter V, Section 4.

Let us begin by looking at the mechanism of the Programme, how it collects funds and to which sector it supplies them.

The source of the Fiscal Investment and Loan is primarily the fund collected in the Industrial Investment Special Account, the Trust Fund Bureau Special Account and the Post Office Life Insurance Fund in the form of taxation, Post Office Savings and contributions, etc. The source is mostly that of the savings of people in one form or another, and the fiscal fund collected in the above mentioned three bodies is the primary source of the Scheme. In these three, the majority is occupied by the Trust Fund Bureau Special Account which collects the Post Office Savings, the Welfare Pension Insurance Reserve Fund, and also the Post Office Life Insurance Fund. As the statistics show, the proportion of the Trust Fund Bureau Special Account to the total Programme has somewhat increased to around 60 per cent in recent years (see Table 15). The percentage of the Post Office Life Insurance Fund has increased from around 6 per cent in the fiscal year 1953 to about 20 per cent between the fiscal years 1957 and 1959. On the other hand, the ratio of the Industrial Investment Special Account decreased from 16 per cent in the fiscal year 1953 to round about 7 per cent in the fiscal year 1959.

Apart /

COMPOSITION OF THE SOURCES OF THE FISCAL INVESTMENT AND LOAN PROGRAMME, 1953 - 1959

(1,000 m. yen)

Items	Year	1953	1954	1955	1956	1957	1958	1959
I. Trust Fund Bureau Special Account (Percentage)		174.6 (52.1)	168.5 (58.4)	152.9 (51.2)	159.7 (51.3)	235.8 (59.7)	270.0 (61.4)	292.8 (56.3)
II. Post Office Life Insurance Fund Special Account (Percentage)		20.1 (6.0)	45.4 (15.7)	48.2 (16.2)	56.4 (18.1)	78.0 (19.7)	89.3 (20.3)	100.0 (19.2)
III. Industrial Investment Special Account, includ- ing Collateral Fund (Percentage)		54.5 (16.3)	20.5 (7.1)	18.0 (6.0)	13.2 (4.2)	37.7 (9.6)	38.5 (8.7)	38.2 (7.4)
IV. Funds accruing from Purchases of U.S. Agricultural Commodities Special Account (Percentages)		- -	- -	180 (6.0)	97 (3.1)	- -	- -	- -
V. General Account (Percentage)		47.5 (14.2)	20.0 (6.9)	11.1 (3.7)	2.0 (0.7)	- -	- -	- -
VI. Public Loan (Percentage)		38.5 (11.5)	34.3 (11.9)	50.4 (16.9)	70.5 (22.6)	43.7 (11.0)	42.3 (9.6)	88.8 (17.1)
Total		335.2 (100.0)	288.7 (100.0)	298.6 (100.0)	311.5 (100.0)	395.3 (100.0)	440.1 (100.0)	519.8 (100.0)

1. The Collateral Fund was a separate account before 1953. The amount for 1953 was 17.8 (1,000m. yen) which was 5.3% of the total. Source: Financial Bureau, Ministry of Finance. TABLE 5.

Apart from the fiscal fund above mentioned, there exist funds raised by Public Corporation Bonds, Local Bonds and the Government Guaranteed Borrowings. The Public Corporation Bonds and the Borrowings are issued or borrowed, being guaranteed by the government, and the Local Bonds are issued on the approval of the government according to its plan. So, though these funds are private funds, they are closely related to the fiscal fund and are also operated as one body with the fiscal funds.¹³ The statistical figures showing the magnitude of sources of these funds and their historical development are listed in Table 15.

Now let us look at the operation of the fund thus collected, i.e. to what sectors it supplies the fund. The first is the supply of fund to the private sector. This group can be divided into two. The first is the supply of funds directly to the enterprise itself which actually carries out the investment schemes, like the loans to the Electric Power Development Company. The second is the supply of funds to the government financial organizations and through them funds are supplied indirectly to the private sector, like the loan to industries through the Japan Development Bank.¹⁴ The latter category is the more usual.

¹³. Public Finance White Paper for 1959, *ibid.*, p. 95.

¹⁴. *Ibid.*

7

There exist twenty nine items in fiscal year 1959 of the supply of the fund to the private sector.¹⁵ The second group is the supply of the fund to the enterprises of the government or the government affiliated organizations. In the budget account, these are listed as the Construction Investment in Government Enterprises. These include the investment of the Japan National Railway, the Japan Telegraph and Telephone Corporation, and also road improvements, specific port and harbour works, multi-purpose dam construction, etc. The third is the loan to the local governments for their enterprises.

If we take statistical figures for them, we find that the first group, namely, the supply of the fund to the private sector has occupied about 50 per cent of all from fiscal year 1953 to fiscal year 1956, and has increased considerably since then to about 63 per cent in 1959. The second group of the Construction Investment in Government Enterprises has occupied only about 10 per cent since the fiscal year 1953 till very recently, but in the fiscal year 1959 it increased to nearly 15 per cent. The third item, the loans to Local Government has shown nearly 40 per cent in the fiscal years 1953, ^{1954,} 1955 and 1956, but has decreased

¹⁵. Fiscal and Financial Statistical Monthly, edit. Ministry of Finance, Printing Bureau of Ministry of Finance, April, 1960, No. 105, p. 48. Table 6.

decreased considerably to about 22 per cent in the fiscal year 1959. Thus we can understand that the Fiscal Investment and Loan Programme is of primary importance in functioning to supply public funds to private sector in industries etc. The statistical figures are listed in Table 16.

It must be mentioned here that two slight adjustments are made in the statistical figures obtainable from the government budget papers (Budget of the State, Explanation of Budget, etc.). Firstly, the government is slightly inaccurate in treating the item called "Workers Welfare" totally as the loans to the private sector (e.g. ¥8.5 million for 1959). This is because a part of the fund (¥3.9 million) is actually a loan to the local governments. From the internal statistical paper supplied from the Ministry of Finance on the classification of the loan for the welfare facilities of the Welfare Pension Insurance Scheme surplus, I could find this point.¹⁶ These adjustments are included from 1956 onwards, since the figures of the subdivision loaned to the local government are not obtainable before 1955. (The magnitude is mostly negligible before 1955). Secondly, though the item of the loan to the Local Government Enterprises Finance Corporation is treated as the loan to the

¹⁶. Supplied from Mr. Kitada. My point was confirmed by his letter, April, 1961.

Operation of the Fiscal Investment and Loan Programme, 1953 - 1959
(1,000 m. yen)

Item \ year	1953	1954	1955	1956	1957	1958	1959
1. Supply of Funds to the Private Sector (Percentage)	172.4 (51.4)	147.6 (51.1)	149.5 (50.1)	161.0 (51.7)	243.5 (61.6)	286.9 (65.1)	329.4 (63.4)
2. Construction Investment in Government Enterprises (Percentage)	36.0 (10.8)	26.1 (9.1)	36.0 (12.0)	36.3 (11.7)	43.9 (11.1)	44.9 (10.2)	76.0 (14.6)
3. Loans to Local Government (Percentage)	126.8 (37.8)	115.0 (39.8)	113.1 (37.9)	114.2 (36.7)	107.9 (27.3)	108.3 (24.6)	114.4 (22.0)
Total	335.2 (100.0)	288.7 (100.0)	298.6 (100.0)	311.5 (100.0)	395.3 (100.0)	440.1 (100.0)	519.8 (100.0)

Table 6.

1. Adjustments are given for items 1 and 3 for 1956 - 1959. Explanations are given in the text.

Source: Financial Bureau, Ministry of Finance.

private sector in the budget paper, since this is the loan to the local government enterprises, we included it in the loan to the Local Government, (though the amount is very small, i.e. ¥ 500 million 1957 onwards). The same adjustments are made in other Tables as well.

If we classify the fund thus supplied directly or indirectly to the public or to the government, we can trace its trend after the war and see the policy implications of the programme.

Firstly there exists a group of funds which is supplied to the general industrial sector at large for general economic development purposes, such as the reinforcement of the fundamental industries like the iron and steel industry and the shipbuilding industry through the Japan Development Bank, for the exploitation and development of electric power to the Electric Power Development Company directly and also indirectly through the Japan Development Bank, and for some other purposes. The Statistical figures show that this item had a very big weight, representing nearly 30 per cent in the fiscal year 1953 in the whole programme, but since then it has decreased considerably to 17 per cent in the fiscal year 1960. This reflects the fact that after the War until about 1953 to 1955, the stress of the government policy on the /

the Fiscal Investment and Loan Programme was put on the quantitative supplement for the key industries, represented in the above mentioned examples. Since it was essentially necessary to reconstruct industries as rapidly as possible in order to reconstruct national economy, the government tried to induce the investments by private sector, by furnishing the fiscal funds to these industries.

Secondly, a certain amount of fund is furnished to export industries through the Japan Export and Import Bank specially for the encouragement of exports. As the increase in export is one of the main factors for the economic development of Japan, a special effort is made and this item is large enough to treat as an independent item in the classification. The figures indicate that this item has also increased from less than 2 per cent in the fiscal year 1954 to between 6 - 7 per cent in the fiscal years 1959 and 1960.

Thirdly the fund is supplied to the medium and small sized industries. This is designed so as to overcome the commonly accepted fundamental deficits of the economy, namely the widespread discrepancies in efficiencies of production between big sized industries and medium and small sized industries, and also the discrepancies in the wage rates. Socially this is regarded as undesirable. Economically, /

Economically, if the wage rates in these medium and small sized industries are increased, these industries will have to face a serious difficulty. This, however, has had an important function in absorbing excess labour supply, which has strictly restricted the nature of the Japanese economy. So far as the government is keen in achieving a full employment economy, and particularly a balanced economic growth, it can never neglect to foster or to take all necessary steps for the medium and small sized industries. This item also showed a considerable increase from less than 8 per cent in the fiscal year 1953 and reaching slightly over 11 per cent in the fiscal year 1960. Nevertheless, this item is much smaller than the item to the big industries, shown as Industrial Development and also included in the Encouragement of Exports.

Fourthly, the fund is supplied to the Agriculture, Forestry and Fishery sector. This also is in line with the government policies to adjust the imbalance of the economy which now exists between economic sectors. The agriculture sector is far lower in its productivity compared with that of the industrial sector, but here again it is absorbing excess labour power. This percentage shows a comparatively even trend from 9 per cent in the fiscal year 1953 to around 8 per cent in the fiscal years 1959 and 1960.

Fifthly the fund is supplied to the Transportation and Communication sector. This showed about 10 to 11 per cent /

cent in the fiscal years 1953 and 1954 but rapidly increased to over 17 per cent in the fiscal year 1959 and 19 per cent in the fiscal year 1960.

Sixthly, the fund is also supplied to the Construction of Houses. This showed a very low rate of 5 to 6 per cent in the fiscal years 1953 and 1954, because construction of houses was initially given second place to the reconstruction of key industries. But since the fiscal year 1955, the economy has recovered and grown, and the needs have also mounted up, so the percentage was doubled to 12 per cent in the fiscal year 1955 and 13 per cent to 14 per cent in the fiscal years 1959 and 1960. The loan to the Local Government has lost most of its importance in these six years, namely from 38 per cent in the fiscal year 1953 to 26 per cent in the fiscal year 1960.

These figures explain the changes of the government policy through the Fiscal Investment and Loan Programme. Namely, after about 1955, the weight of the supply of fund for the reconstruction of key industries decreased and the weight of qualitative supplements toward economy increased, i.e. the improvement of fundamental industrial facilities, such as road and harbour improvements, the settlement of livelihood by construction of houses etc., the protection and fostering of the economically weak medium /

medium and small sized industries etc.¹⁷

This can most clearly be seen if we compare the rate of growth of items of the programme. During the seven years between the fiscal years 1953 to 1960, the total expenditure of the programme increased by 77 per cent, while the Industrial Development item rose by 5 per cent, showing nearly no growth at all, thus decreasing rapidly its relative weight. On the other hand the Medium and Small-sized Industries increased by 249.2 per cent, the Transportation and Communication by 207.1 per cent, and the Construction of Houses by 350.0 per cent.¹⁸ These comparisons clearly show the change of stress of the government policies.

Another point which these comparisons teach us is that the Fiscal Investment and Loan Programme acted, and also can act, very elastically and flexibly according to the changing pattern of the economy, according to the judgement of the government on the condition and necessity of the national economy. This implies the effectiveness of the Fiscal Investment and Loan Programme as a compensatory fiscal policy. The government can adjust this investment according to the market conditions much more flexibly than

¹⁷. This qualitative change around 1955 is pointed out in Public Finance White Paper for 1959, *ibid.*, p. 92.

¹⁸. Suzuki, Y. Outline of the Fiscal Investment and Loan Programme for the Fiscal Year, 1960. Fiscal and Financial Statistical Monthly, No. 105, *ibid.*, pp. 19-20. Since recalculation was possible only after 1956, the above quoted ratios are based on the government classifications.

it can the General Account Budget. The latter is not so flexible, because the majority is more or less fixed by obligatory expenses, administrative costs, continuing expenditure, etc. The government can adjust not only the scale of the plan itself, but can more easily quicken or slow down the tempo of the investment.¹⁹ Actually the Programme has acted as one of the most important parts of the fiscal policies in Japan.

The statistical figures showing the trend of the programme are listed in the following Table (17).

Now we have seen what is the Fiscal Investment and Loan Programme, how it is financed and how it operates. It is essentially necessary to see the mechanism and the operation of the Programme, for the Programme is financed mainly by the Trust Fund Bureau Special Account which collects its money in part through the Welfare Pension Insurance Scheme. The new National Pension Scheme will also furnish a large amount of industrial fund through its funding mechanism. Without going further into appraisal or criticism of the Fiscal Investment and Loan Programme, we shall come back to the study of the mechanism and the operation of the Trust Fund Bureau Special Account.

The Trust Fund Bureau Special Account is furnishing

¹⁹. Public Finance White Paper for 1959, *ibid*, p. 93, This process of adjustment of enforcing time is always carried out whenever a strong lead of economic activities by the government is required.

FISCAL INVESTMENT AND THE LOAN PROGRAMME CLASSIFIED BY PURPOSE, 1953 - 1960

(1,000 m. yen)

Purpose \ Fiscal year	1953	1954	1955	1956	1957	1958	1959	1960
1. Industrial Developments	97.5 (29.1) ¹	74.9 (25.9)	47.2 (15.8)	50.8 (16.3)	92.6 (23.4)	106.7 (24.2)	102.3 (19.7)	102.5 (17.3)
2. Encouragement of Exportation	- -	5.0 (1.7)	21.0 (7.0)	16.3 (5.2)	3.5 (0.9)	8.0 (1.8)	36.0 (6.9)	36.0 (6.1)
3. Medium and Small Sized Industries	26.6 (7.9)	26.5 (9.2)	24.4 (8.2)	30.5 (9.8)	67.2 (17.0)	62.5 (14.2)	58.2 (11.2)	66.3 (11.2)
4. Agriculture, Forestry and Fishery	29.3 (8.7)	21.2 (7.3)	19.6 (6.6)	19.1 (6.1)	19.2 (4.9)	30.1 (6.8)	43.2 (8.3)	95.9 (7.7)
5. Transportation and Communication	36.7 (10.9)	28.1 (9.7)	37.0 (12.4)	44.8 (14.4)	50.5 (12.8)	60.2 (13.7)	89.7 (17.3)	112.7 (18.9)
6. Construction of Houses and Welfare Facilities	18.2 (5.4)	18.0 (6.2)	36.3 (12.2)	38.8 (12.1)	55.9 (13.3)	63.0 (14.3)	72.8 (14.0)	76.4 (12.9)
7. Loans to Local Government	126.8 (37.8)	115.0 (39.8)	113.1 (37.9)	114.2 (35.7)	107.9 (27.1)	109.1 (24.8)	114.4 (22.0)	151.8 (25.6)
8. Others	0.1 (0)	- -	- -	- -	1.8 (0.5)	.5 (0.1)	3.2 (0.6)	2.5 (0.4)
9. Total	335.2	288.7	298.6	311.5	395.3	440.1	519.8	594.1

TABLE 7.

1. Throughout the table figures in parenthesis represent percentage to the total.

SOURCE: Financial Bureau, Ministry of Finance.

nearly 60 per cent of all the fund utilized in the Fiscal Investment and Loan Programme in the above mentioned line of government policies.

The biggest item of the financial source of the Trust Fund Bureau Special Account is the Post Office Savings, representing about two thirds of the annual increase of the total source of the Account. The feature of the Post Office Savings lies in the guarantee of the state on the repayment of the principal and also the payment of the interest on the deposited money, by the Post Office Savings Act.¹⁰ The credit stands on the guarantee of the state, whose ultimate safeguard lies in its tax collection power. It does not rest on the effectiveness of the deposited fund as a profit creative capital. This feature of the Post Office Savings explains the subsidiary transfer of the fund from the Exchequer, i.e. from the General Account or the Trust Fund Bureau Special Account, to the Postal Services Special Account, which is established for the management of the postal services as a government business account. (This amounted to ¥4.1 thousand million in the budget of the fiscal year 1957). Needless to say, these funds thus collected through the deposits of the government guaranteed Post Office Savings, represent a vast number of extremely small deposits of people at large. The

¹⁰. Post Office Savings Act, 1947.

relatively high cost of the collection of the small deposits from the general public, characterized by a high rate of interest, vastness of the area of the deposit collection, and consequently the relative greatness of its running costs, yet the extreme smallness of the individual deposits, are covered by the fiscal fund through taxation and guaranteed by the state resting on the taxation, and come to work as a long term low rate of interest industrial fund, which may well be called in most cases a "Subsidy".

Moreover it comes to be realised that the weight of social insurance as a means of a collection of fiscal fund has been considerably increased. And here we see that the next greatest item of the source of the Trust Fund Bureau is the Welfare Pension Insurance Reserves, which occupies just one third of the annual increase in the deposit of the Account, and also about 20 per cent of the total annual increase of the Account. Moreover if we take the historical tendency, we find that the increase of the deposits by the Welfare Pension Insurance Reserves has increased rapidly since the fiscal year 1953, from less than 10 per cent in its percentage overall (16 per cent to the increase in deposits) in the fiscal year 1953 to about 20 per cent overall, (33 per cent to the increase in deposits) in the fiscal year 1959. The annual surplus of the Welfare Pension Insurance Scheme has increased from /

from ¥16.2 thousand million in the fiscal year 1953 to ¥56.5 thousand million in 1959, amounting to 350 per cent. This tendency of the latter will be intensified by the development of a social security programme, which was rather late in starting compared with the western developed countries, but which is developing at a rather rapid pace. Moreover, as the National Pension Scheme has come to deposit its reserves by the collection of contributions, etc. the significance of the social insurance schemes in the supply of fiscal funds will increase greatly. And the fund thus furnished through the social insurance mechanism, though it is taken out from a certain category of people named as social insurance contributors including many numbers of low income receivers, may work as an effective machine for the industrial development. The social insurance mechanism furnishes industries with low rate of long-term credit, which more substantially resembles a state subsidy. Moreover, this is carried out in the name of increasing social welfare services. Here we see clearly the working of the social insurance scheme and the position of the Welfare Pension Insurance in the financial mechanisms of the Special Accounting system of the government sector, and its role in the development of the national economy. The statistical figures representing these are listed in the Table (18).

We /

COMPOSITION OF THE SOURCES OF THE TRUST FUND BUREAU, 1953 - 1959
(1,000 m. yen)

Fiscal year Classification	1953	1954	1955	1956	1957	1958	1959
1. Increase in deposit	139.6 ¹ 41.6 (79.9)	144.4 50.0 (85.7)	124.6 41.7 (81.5)	183.4 58.9 (114.8)	194.3 49.2 (82.4)	170.3 38.7 (63.1)	169.8 32.7 (58.0)
(1) Post Office Savings	81.1 24.2 (46.4)	101.5 35.2 (60.2)	82.0 27.5 (53.6)	112.0 36.0 (70.1)	102.7 26.0 (43.6)	85.6 19.5 (31.7)	100.0 19.2 (34.2)
(2) Post Office Life Insurance Annuity	24.7 7.4 (14.1)	2.1 0.7 (1.2)	39.9 1.3 (2.6)	7.0 2.3 (4.4)	6.0 1.5 (2.5)	- - -	4.6 0.9 (1.6)
(3) Welfare Pension Insurance	16.2 4.8 (9.2)	29.0 10.0 (17.2)	31.4 10.5 (20.5)	40.0 12.8 (25.0)	57.4 14.5 (24.3)	57.2 13.0 (21.2)	56.5 10.9 (19.3)
(4) Others	17.6 5.2 (10.0)	11.8 4.1 (7.0)	7.2 ¹ 2.4 (4.7)	24.4 7.8 (15.3)	28.2 7.2 (12.0)	27.5 6.2 (10.2)	8.7 1.7 (3.0)
2. Collection of Loaned Money	12.9 3.9 (7.3)	24.1 8.4 (14.3)	30.4 10.2 (19.9)	40.4 13.0 (25.3)	50.6 12.8 (21.5)	72.9 16.6 (27.0)	88.0 16.9 (30.1)
(1) Government Bond	2.0 0.6 (1.1)	7.4 2.6 (4.4)	6.2 2.1 (4.1)	- - -	- - -	- - -	- - -
(2) Local Government Bond	7.5 2.3 (4.3)	12.1 4.2 (7.2)	15.7 5.3 (10.3)	24.3 7.8 (15.2)	26.8 6.8 (11.4)	34.8 7.9 (12.9)	34.0 6.5 (11.6)
(3) Others	3.4 1.0 (1.9)	4.6 1.6 (2.7)	8.5 2.8 (5.6)	16.1 5.2 (10.1)	23.8 6.0 (10.1)	38.1 8.7 (14.1)	54.0 10.4 (18.4)
3. Others	22.1 6.6 (12.6)	- - -	-2.1 -0.7 (-1.4)	-64.1 -20.6 (-40.1)	-9.1 -2.3 (-3.9)	26.9 6.1 (10.0)	35.0 6.7 (12.0)
TOTAL	174.6 52.1 (100.0)	168.5 58.4 (100.0)	152.9 51.2 (100.0)	159.7 51.3 (100.0)	235.8 59.7 (100.0)	270.0 61.4 (100.0)	292.8 56.3 (100.0)

TABLE 8

1. Throughout the table the first row is the absolute amount, the second is the percentage of the total Fiscal Investment and Loan Programme, and the third, in parenthesis, is the percentage of the Trust Fund Bureau.

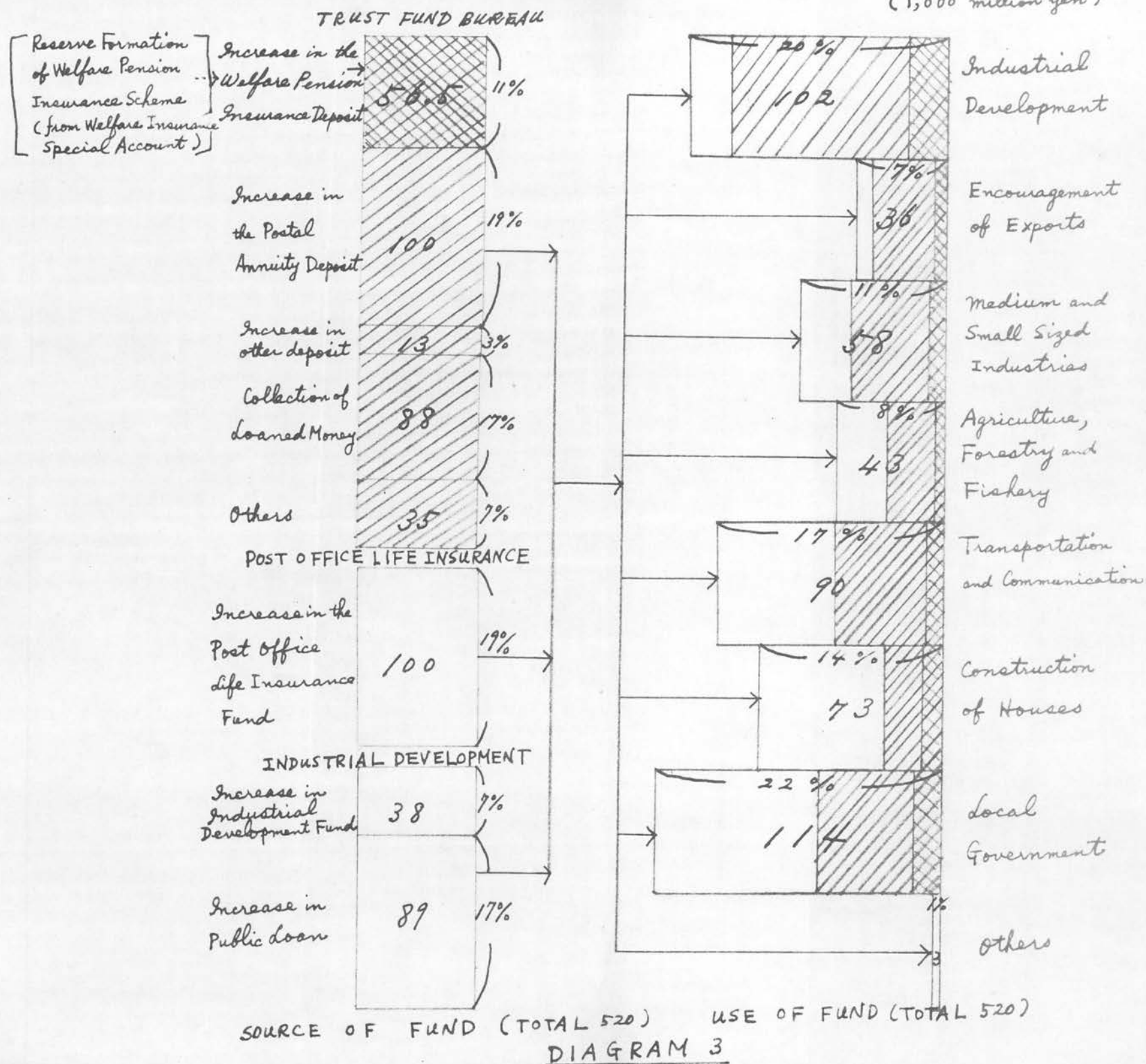
SOURCE: Compiled from papers supplied by the Financial Bureau, Ministry of Finance.

We have so far learned that more than half of the fund in the Fiscal Investment and Loan Programme is supplied through the Trust Fund Bureau Special Account and a considerable amount, around 20 per cent, of this is supplied by the annual increase of deposits by the Welfare Insurance Special Accounts, which represent the annual reserves of the Welfare Pension Insurance Scheme. We also have learned that the fund thus supplied is operated in the several industrial sectors, government sectors etc. Now if we combine these mechanisms of the Trust Fund Bureau Special Account and the Fiscal Investment and Loan Programme with the functions of the Welfare Pension Insurance, we can get the diagram which shows clearly the flow of funds from the Welfare Pension Insurance, to the Trust Fund Bureau and, via the Fiscal Investment and Loan Programme, to several industrial sectors, local government, etc. (Diagram 3).

Not only have we shown the flow of funds of the total Fiscal Investment and Loan Programme, how it is allocated among several industrial sectors, etc., but also we have shown the flow of funds corresponding to the Trust Fund Bureau Special Account by the part drawn by oblique lines. The classification of the total Fiscal Investment and Loan Programme according to purposes is shown by the government.¹¹ We adopt this figure with

¹¹. Fiscal and Financial Statistical Monthly, No. 105, *ibid.*, p. 49.

FLOW OF FUNDS OF FISCAL INVESTMENT AND LOAN PROGRAMME, 1959 (1,000 million yen)



two slight adjustments related to the Loans to the Local Governments previously mentioned. However, so far as I know, and at least before 1961,¹² the government has not shown the corresponding classification of the Trust Fund Bureau Special Account funds. Nevertheless we have a Table on the Fiscal Invest and Loan Fund Programme for the Fiscal Year 1959 obtained from the Ministry of Finance; this shows the relation between the individual Accounts, (i.e. a large classification, such as the Trust Fund Bureau Special Account, and not a sub-division, as the Welfare Insurance Special Account, which is the composing factor of the former), and the individual institutions which receive loans from these Accounts. By analysing the nature of these institutions, we classify these 38 items according to their economic nature, (e.g. the loan of ¥18.5 thousand million from the Trust Fund Bureau Special Account to the Medium and Small-sized Enterprises Financial Corporation is classified as Medium and Small-sized Industries, etc.) in the same way as the Treasury officials do the total Fiscal Invest and Loan Programme; with the exception of the necessary adjustments related to the Loans to Local Government. With these preparations, and also with a due adjustment due to a specific nature of a part of the Trust Fund Bureau fund, i.e. corresponding to about

¹². As to the new treatment from the 1961 budget see Chapter V, Section 4.

15 per cent of the annual Welfare Pension Insurance surplus, the previous Diagram has been obtained. The latter treatment we will now discuss.

As we can see very clearly in the diagram, about 20 per cent of the whole Trust Fund Bureau Special Account is supplied through the reserve mechanism of the Welfare Pension Insurance Scheme, and the fund is operated by the same Account together with other funds in the industrial sectors, agricultural sectors, local governments, etc., according to each year's Fiscal Investment and Loan Programme. Though we can trace how the Trust Fund Bureau Special Account fund is allocated, as we have done above, we are not informed how the fund corresponds to the Welfare Pension Insurance Scheme. This is because the fund is operated in the Trust Fund Bureau Special Account together with other funds as one account. Nevertheless, a part of the Welfare Pension Insurance surplus, i.e., 15 per cent in 1959 is operated in the construction investment of welfare facilities, and workers' houses. This decision of specific allocation of funds is carried out by political considerations, in order to show the public that the pension funds are utilized for the welfare of the insured.¹³ Therefore, though this part is included in the operation of the total Trust Fund Bureau fund, we have to treat it

¹³. The definition of the welfare of the insured, and the adequacy of these government policies, may involve a serious problem. See Chapter V, Section 4.

separately from other funds. From the internal statistics of the Ministry of Finance,¹⁴ we gather that a part of the fund goes to the local government (¥3.9 thousand million for 1959), while the rest goes to the entrepreneurs in the private sector (¥4.6 thousand million), (though as a formality through local governments). If we adjust this part, we know the actual allocation of the Trust Fund Bureau fund. As the fund supplied through the Welfare Pension Insurance Scheme is operated as one body with other funds in the Trust Fund Bureau Special Account, and as the interest is paid from the same Account to the Welfare Insurance Special Account, the most reasonable assumption will be that the fund supplied from the Welfare Pension Insurance surplus is, except the specially decided part above mentioned, allocated proportionally to the industrial sectors, agricultural sectors, local governments, etc., as the total allocation of the Trust Fund Bureau fund indicates. Then we can get the investment figure for each sector which is financed by the Welfare Pension Insurance scheme. The main process is shown in the following Table 9⁽¹⁾. The allocation of the total Welfare Pension Insurance Scheme surplus shows the importance and magnitude of the Welfare Pension Insurance scheme in the government investment plan in each of the

¹⁴. From Fund Section of Financial Bureau of Ministry of Finance. Supplied from Mr. Kitada.

Classification of the Welfare Pension Insurance Surplus, the Trust Fund Bureau fund, and the Fiscal Investment and Loan Programme according to purposes, 1959.

(1,000 million yen)

Item Purposes	Trust Fund Bureau Fund (Excl. Special Part) ¹	% to the total ²	Welfare Pension Insurance Surplus ³			Trust Fund Bureau Fund		Fiscal Invest- ment & Loan Programme	
			Excl. Special Part ^{1,2}	(Special Part) ¹	Total	Excl. Welfare Pension Surplus	Total	Excl. Trust Fund Bureau	(Total
1	86.0	30.2	14.5		14.5	71.5	86.0	16.3	102.3
2	29.0	10.2	4.9		4.9	24.1	29.0	7.0	36.0
3	37.0	13.0	6.2		6.2	30.8	37.0	21.2	58.2
4.	23.2	8.2	3.9		3.9	19.3	23.2	20.0	43.2
5	43.5	15.3	7.4		7.4	36.1	43.5	46.2	89.7
6	18.4	6.5	3.1	4.6	7.7	15.3	23.0	49.8	72.8
7	45.0	15.8	7.6	3.9	11.5	37.4	48.9	65.5	114.4
8	2.2	0.8	.4		.4	1.8	2.2	1.0	3.2
Total	284.3	100.0	48.0	8.5	56.5	236.3	292.8	227.0	519.8

TABLE 9(1)

1. Industrial Development. 2. Encouragement of Exports. 3. Medium, Small-Sized Industries.
4. Agriculture, Forestry and Fishery. 5. Transportation and Communication.
6. Construction of Houses. 7. Local Government. 8. Others.

¹ Special Part indicates the part of the supply of funds for welfare facilities which is decided as a certain proportion of the Welfare Pension Surplus ($8.5 \div 56.6 \times 0.15$).

² Item 3 is obtained by distributing the total (48.0) by the ratios found in Item 2.

³ Welfare Pension Insurance Surplus here represents the amount shown in the revenue of the Trust Fund Bureau Special Account as receipts from the Welfare Insurance Special Account and does not include the part transferred to other accounts, (e.g. to Seamen's Insurance Special Account).

SOURCE: Compiled and recalculated from statistics, Ministry of Finance.

industrial sectors, etc. The parts shown in diagonal shading in Diagram 3 indicate the allocation of the Welfare Pension Insurance Scheme Surplus thus obtained.

By the same assumption, we obtain the allocation of the Welfare Pension Insurance Scheme Surplus among the private sector Central Government (including Government Affiliated Organisations), and Local Government (including Local Government Enterprises). The mechanism by which the funds flow from the Welfare Pension Insurance Scheme and also from the Trust Fund Bureau Special Account to these sectors is shown in Diagram 4, as well as in Table 9 (2).

By similar processes we distribute the interest burden paid from the Trust Fund Bureau Special Account to the Welfare Insurance Special Account among sectors where the loan has been supplied in the past. We do this with the aid of statistics, pertaining to the source of the interest revenue of the Trust Fund Bureau Special Account for the fiscal year 1959, and the recent record of supply of funds specifically decided as a proportion of the annual reserve of the Welfare Pension Insurance Scheme.¹⁵ In conclusion, the proportion of the interest burden on the Welfare Pension Insurance Scheme funds borne by the private sector as against the total interest burden is obtained as 41.5 per cent.¹⁶

By these processes we have thus clarified how the surplus of the Welfare Pension Insurance Scheme is operated, and how the burden of the interest payments to the Scheme are distributed

¹⁵. Internal Statistics supplied from the Ministry of Finance.

¹⁶. For detail, See Appendices to Chapter II, 2. Interest Revenue of Welfare Insurance Special Account.

FLOW OF FUNDS OF TRUST FUND BUREAU SPECIAL ACCOUNT FUND, 1959
(1,000 m. yen)

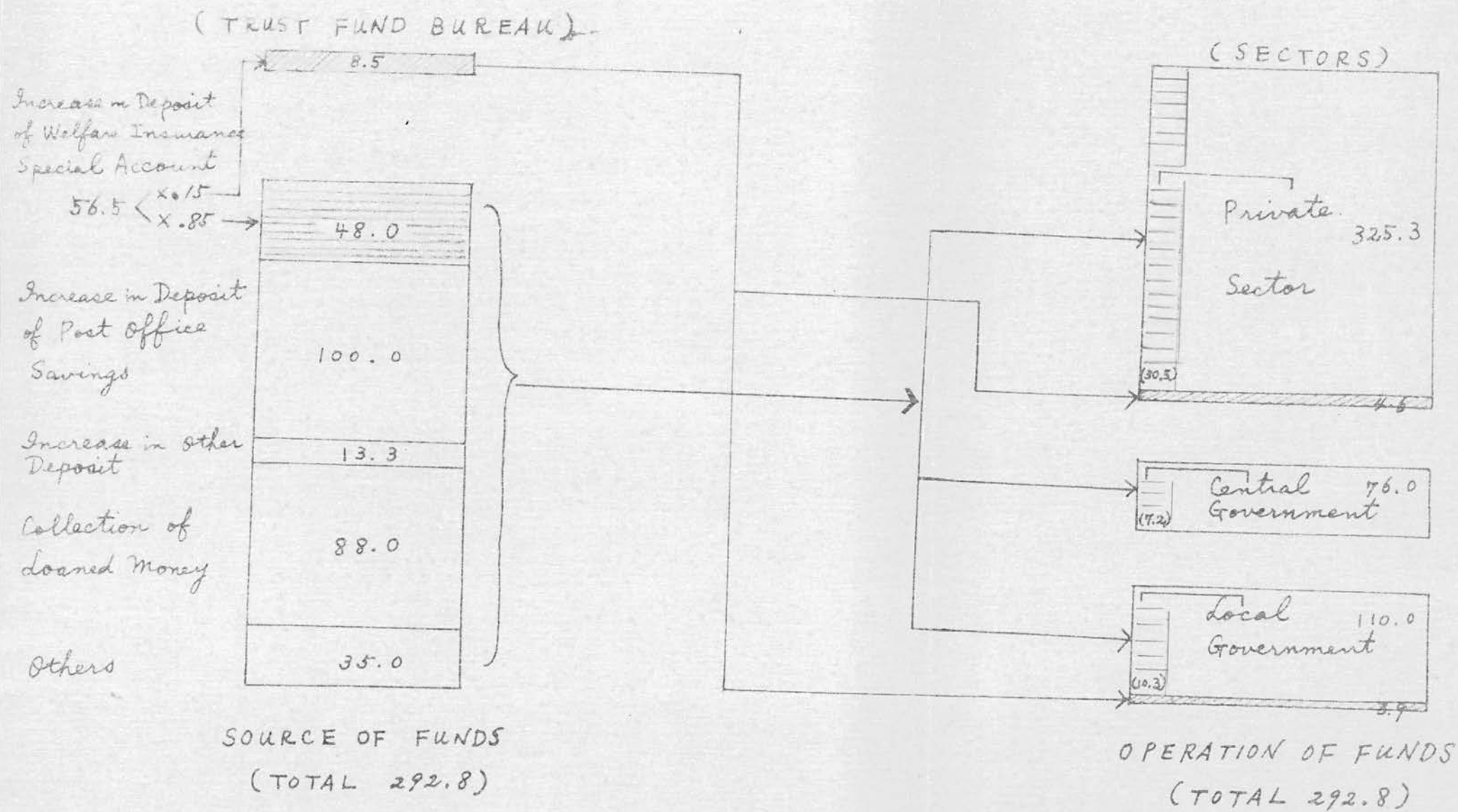


DIAGRAM 4

CLASSIFICATION OF THE FUND FINANCED BY WELFARE PENSION INSURANCE IN THE TRUST FUND BUREAU SPECIAL ACCOUNT AND IN THE FISCAL INVESTMENT AND LOAN PROGRAMME, 1959. (1,000 m. yen).

Sectors \ Items	1 Trust Fund Bureau (Total)	2 Trust Fund Bureau ² (Excluding Special Part ¹)	3 Welfare Pension Surplus ^{1,4} (Exclud- ing Special Part ¹)	4 Welfare Pension Surplus (Special Part ¹)	5 Welfare Pension Surplus (Including Special Part ¹)	6 Fiscal Investment and Loan Programme (Total)
1. Supply of Fund to the Private Sector	329.9 (63.5)	325.3 (63.6)	30.5 -	4.6 ¹ -	35.1 (62.1)	329.4 (63.4)
2. Supply of Fund to Government Enterprises and Government Affiliated Organisations.	76.0 (14.6)	76.0 (14.9)	7.2 -	0 -	7.2 (12.7)	76.0 (14.6)
3. Supply of Fund to Local Government	113.9 (21.9)	110.0 (21.5)	10.3 -	3.9 ¹ -	14.2 (25.1)	114.4 (22.0)
4. Total	519.8 (100.0)	511.3 (100.0)	48.0 -	8.5 ¹ -	56.5 ¹ (100.0)	519.8 (100.0)

TABLE 9.(2)

1. Special Part indicates the part of the supply of Fund for Welfare facilities which is decided as a certain proportion of the Welfare Pension Surplus ($8.5 \div 56.5 \times 0.15$).
2. Item 2 shows the normal ratio of the allocation of the Trust Fund Bureau Fund excluding Special Part.
3. Item 3 is obtained on the assumption that the Welfare Pension Surplus is (except the Special Part) allocated in the same proportion of the normal allocation ratio of the Trust Fund Bureau Fund, as shown in Item 2.
4. Welfare Pension Surplus here represents the amount shown in the revenue of the Trust Fund Bureau Special Account as receipts from the Welfare Insurance Special Account and does not include the part transferred to other accounts (e.g. transfers to Seamen's Insurance Special Account).

SOURCE: Compiled and recalculated from statistics, Ministry of Finance.

between the private and the public sector. In the previous section we have clarified the mechanism of the Welfare Pension Insurance Scheme itself, how its revenue and expenditure are composed of. Thus we could show the whole mechanism of the Welfare Pension Insurance Scheme in the national economy.

Before concluding the section, we will try an additional attempt to show distinctly, the economic function of the Welfare Pension Insurance Scheme in the national economy, admitting the difficulty associated with the Accounting Period,¹⁷ and also admitting that the accuracy may be reduced. Thus our attempt is to consolidate the mechanism of the Welfare Pension Insurance Scheme into the wider mechanism of the flow of funds between the Welfare Insurance Special Account, the Trust Fund Bureau Special Account, and the private and the public sectors which are the receivers and the payers of the loan and interest. We will base our accounting period on that of the latter, and assume that the proportion of the items of the revenue

17. For detail, See Further Explanations at the end of the present Section.

and expenditure of the Welfare Pension Insurance Scheme remains the same.¹⁸ (Diagram 5). In the final diagram thus obtained, we can see the whole mechanisms of the Welfare Pension Insurance Scheme which can rarely be understood in full due to the many complications we have had to face in our analysis. We see in the diagram how the Scheme is affecting and altering the flow of funds of national economy under the cover of those mysterious mechanisms we have analysed. In this diagram we represent the whole insurance function as the "Welfare Pension Insurance Scheme", and all the Exchequer function carried out by the General Account, other Special Account and Trust Fund Bureau Special Account as the "Exchequer". The loan and the purchase of goods and services to the private sector, and the interest payments from the private sector, are shown in direct lines between "Firms" and "Welfare Pension Insurance Scheme". This method is adopted since it will clarify the relation distinctly, and since we are concerned with the economic function of the Scheme rather than in institutional details.

We assume here that the interest payments from the private sector come from undistributed profits of firms, while the interest payments from the Local Governments, Central Government, and their Enterprises, come through the general taxation revenue.

18.

For further details, see Further Explanations to this Section.

CONSOLIDATED ACCOUNTS OF WELFARE PENSION INSURANCE SCHEME

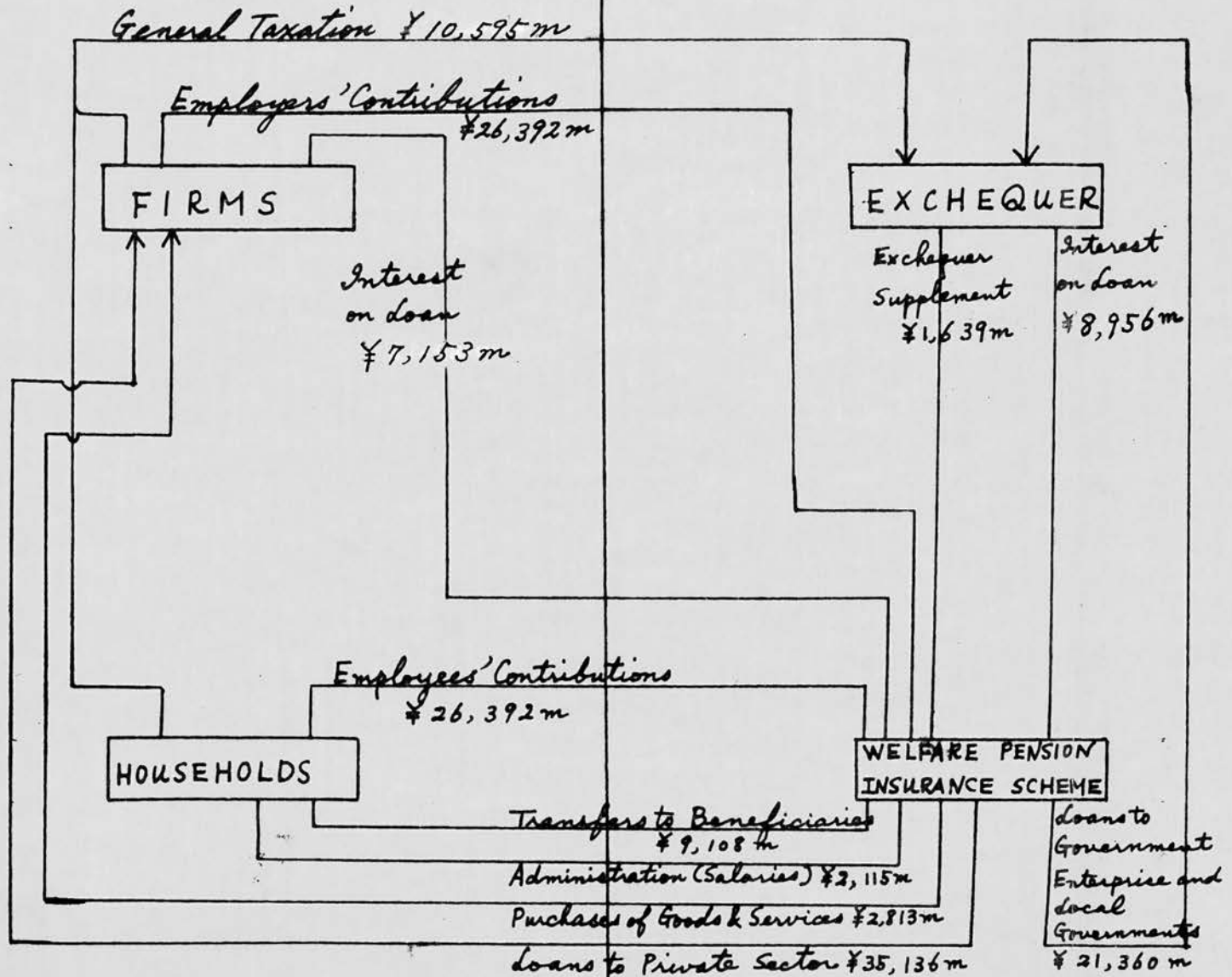


DIAGRAM 5

We can conclude this section by summarising the main points which the Diagram shows. First of all the scheme helps the development of the economy through a large proportion of supply of funds to the industries, etc., the funds of which are mostly collected through employers and employees' contributions. Secondly, we see the magnitude of net receipt of the Exchequer, which is used in the public sector mostly in local governments and also in the government enterprises. A clear cut view of the scheme is its tax collecting machinery for the management of the Exchequer. The third small item is the pension payment which is supposed to be the original purpose of the scheme. We find it misleading if we understand the Japanese old age pension scheme merely as a mechanism of transferring private funds from people well off to those in need, and if we try to pursue the effect of that process, since the main function is not that at all.

Last of all we will classify them in a social accounting representation.¹⁹ (Diagram 6).

¹⁹ This is based on the analysis of the British case, by Peacock, A.T., *ibid.*, p. 39.

DIAGRAM 6

ACCOUNTS OF WELFARE PENSION INSURANCE SCHEME

I. GOVERNMENT EXCHEQUER

(a) Revenue Account

(Exchequer General Account
(Trust Fund Bureau Special
(Account
(Other Special Account
(Government Enterprises
(Local Governments

Expenditure	Y _{mn}	Receipts	Y _{mn}
A ₁ Grants from Government Exchequer to Welfare Pension Insurance	1,639	C General Taxation from private sector to finance Welfare Pension Insurance	10,595
B ₁ Interest on loans supplied by Welfare Pension Insurance	8,956		

(b) Capital Account

D Increase in investment in public sector	21,360	E ₁ Loans to Government Exchequer from Welfare Pension Insurance	21,360
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II. WELFARE PENSION INSURANCE SCHEME

(a) Revenue Account

(Welfare Insurance
(Special Account

F Expenses of Administration	2,115	J Contributions from Private Sector	52,784
G Payments to Beneficiaries	9,108	(a) Employees	26,392
H Purchases of Goods & Services	2,813	(b) Employers	26,392
I Surplus on Revenue Account	56,496	K Interest payments from private sector on loans supplied by pension scheme	7,153
		A ₁₁ Grants from Government Exchequer	1,639
		B ₁₁ Interest payments from Government Exchequer on loans supplied by pension scheme	8,956

(b) Capital Account

E _{ii}	Loans to Government Exchequer	21,360	M	Surplus on Revenue Account	56,496
L	Loans to private sector	35,136			

III. CONSOLIDATED ACCOUNT

(a) Revenue Account

Expenditure	Y _{mn}	Receipts	Y _{mn}
F Expenses of Administration	2,115	C General Taxation from Private sector to finance Welfare Pension Insurance	10,595
G Payments to Beneficiaries	9,108		
H Purchases of Goods & Services	2,813	J Contributions from private sector	52,784
I Surplus on Revenue Account	56,496	(a) Employees	26,392
		(b) Employers	26,392
		K Interest payments from private sector on loans supplied by pension scheme	7,153

(b) Capital Account

D	Increase in investment in public sector	21,360	M	Surplus on Revenue Account	56,496
L	Loans to private sector	35,136			

Further Explanations

Accounting Periods

The reason why we have to adopt an assumption that the proportions of the items of the revenue and expenditure of the Welfare Pension Insurance Scheme remain the same is because there is a discrepancy in the accounting system between two Special Accounts with which we are concerned.

The revenue and expenditure of the Welfare Insurance Special Account includes those in the Receipts and Disbursement Adjustment Period. More precisely, Account for the fiscal year 1959 includes those revenues and expenditures which are legally due for the fiscal year 1959 and yet actual cash transactions are carried out within the Adjustment Period. On the other hand, the Account does not include those parts which are legally due for the fiscal year 1958 and yet actual payments and receipts are carried out in April or May, 1959. (As the fiscal year starts in April in Japan, April and May, 1959 belong as a financial period to the fiscal year 1959). (The Adjustment Period of Receipts and Disbursement of the Exchequer is until the end of April of the following year in the case of transactions with the private sector, while it is until the end of May in the case of transfers within the Exchequer).

On /

On the other hand, the deposit to the Trust Fund Bureau Special Account is a cash deposit. Therefore, the revenue and expenditure in the Adjustment Period for the fiscal year 1959 are not included in this Account, while a part of the revenue and expenditure of the Pension Account of the Welfare Insurance Special Account due for the fiscal year 1958 are included in the Deposit Increase in the Trust Fund Bureau Special Account for the fiscal year 1959.

Because of this discrepancy in the accounting period of the two Accounts, there inevitably occurs some discrepancies between the surplus of the Welfare Pension Insurance Scheme and the estimated increase in deposit of the Trust Fund Bureau Special Account. Since no further statistics are available, we had to introduce the assumption mentioned in the text.²⁰

Section 5. National Pension Scheme.

We have so far discussed the place of the Welfare Pension Insurance in the national economy of Japan, including the analysis of its function in supplying the fiscal funds. We have also mentioned that the new National Pension Scheme will come to have a very important place in the near future. Let us turn now to the National

²⁰. This explanation is based on the information supplied from Ministry of Finance, Mr. Kitada, *ibid.*

Pension Scheme and try to carve in relief the place of its finance in the developing Japanese economy, and try to get the magnitude of the role which it is likely to carry.

The new Japanese National Pension Scheme, promulgated in the Act of 1959, is composed of two different schemes, different in economic nature, i.e., one is a contributory pension scheme, the other a non-contributory. The latter belongs to the category of the national assistance services, so the former is our main interest. It is composed of five kinds of schemes, namely, the old age pension, the disabled pension, the mother and child family pension, the orphans' pension, and the widows' pension; the first one is the most fundamental and important scheme of all. The insured are to be fundamentally those who are not covered by the existing public pension schemes. The first item of the revenue of the scheme is the contribution. But we have to notice here that there exists no employers' contribution. So it is the two partite system of contribution. The contribution period is between 20 to 59 years of age and the pension age is 65. The contribution rate is ¥ 100 per month between ages 20 to 34 and ¥150 between 35 to 59. (For those between 20 and 55 years in April, 1960, the contribution period is shortened and, consequently, the pension /

pension amount is decreased). The contribution duty can be exempted for low income receivers. The minimum contribution period, as a rule, is 25 years - 10 years for those who received contribution exemption.

The second revenue item is the Treasury Supplement, which bears the sum equivalent to half of the contributions paid in that fiscal year and all the administrative cost. Re-adjustment and recalculations on the contribution amounts, the benefit payments etc. will be carried out at least every five years. The third revenue item is the interest payment on the deposits in the Trust Fund Bureau Special Account which comes from the industrial sector, etc. and which is expected to become the biggest revenue item within 15 years.

As to the expenditure side, the first item is the transfer to private current account in the form of pensions for old age, disabled, families without fathers, orphans and widows. The pension amount is ¥3,500 a month for those who have contributed for 40 years, and ¥2,000 for those for 25 years. The second item is the administrative expense which is needed to carry out the scheme. The balance of income and expenditure is made up by the surplus on current account, a part of which will be used for the purchase of welfare facilities.

As /

As to the financial administration, it adopts a funding system and the excess revenue over payment is paid in to the Trust Fund Bureau Special Account under the control of the Ministry of Finance and utilized as a fiscal fund as the Fiscal Investment and Loan Programme. A certain proportion of the fund, i.e. 25 per cent of the annual surplus for 1961, is expected to be used for welfare facilities for the benefit of the contributors.

This is a brief outline of the scheme, which will become clearer when we try to show the place of the scheme in the economy. One feature of the scheme is that it adopts a funding system and the flat rate contribution and payment system. As we saw, the Exchequer Supplement is decided as a proportion of the contribution amount, not of the benefit payment, as is the case of the Welfare Pension Insurance Scheme. This implies that the Exchequer Supplement will be considerably large from the starting year and will increase gradually. On the other hand the benefit payment will not start immediately; at least 10 years later in the case of the transient old age pension receivers and 40 years for full pension receivers. We must, therefore realize that the main function of the new National Pension Scheme during the coming 20 to 30 years will not be the transfer of money from the rich to the poor, or /

or the well off to those temporarily or permanently in need, but the transfer of funds from public to the Exchequer and, through the Exchequer, to the industries, etc. We will see the chief economic effect of the scheme, as its reserve creating function and thus furnishing industry etc. with the fiscal funds. The supply of funds seems to be the crucial function it achieves.

Let us first look at the financial magnitude of the National Pension Scheme, by comparison with each item of the Welfare Pension Insurance scheme.

If we take the contribution figure, it corresponds to about one third of that of the Welfare Pension Insurance. This reflects the fact that the contribution is decided at an extremely low rate in the National Pension Scheme, but this amount will gradually increase in the future. Secondly, if we take the Exchequer Supplement we find it far bigger, more than 6 times as big as that of the Welfare Pension Insurance, and if we add the Exchequer Supplement for the Deficit of the scheme, it amounts to nearly 7 times as much. This shows that more taxation revenue is used in the new scheme. Because the scheme is just starting, the interest revenue is very low, representing only 5 per cent of that of the Welfare Pension Insurance; but it will increase rapidly in the future, reaching 70 per cent of the total benefit payment. The net increase in reserves shows about half /

half of the figure for the Welfare Pension Insurance from the base year. The reserve will increase rapidly according to the increase of the contribution, the Exchequer Supplement and the interest revenue, and also owing to the smallness of pension payment in the initial 15 to 20 years; it will become one of the biggest items in the supply of funds in the future.

We now have a rough idea of the size of the National Pension Scheme in its starting year in comparison with the Welfare Pension Insurance. In order to examine the function which the scheme is likely to have in the future, we will show its mechanism in the flow of funds diagram by taking the figure for the fiscal year 1975 when a certain amount of fund flows into Households in the Private Sector in the form of pension payments (Diagram 7). The figure we use here is a mere forecast of the future financial condition and is subject to considerable uncertainties. To evade the arbitrariness of assumptions, we will show a surplus on a current account simply in a line from the Scheme to Exchequer, and the interest revenue in a simple line from Exchequer to the Scheme. This is because we are not sure what will be the future operation of the surplus of the Scheme between the private and the public sector. The diagram shows that the main function of the Scheme in 15 years' time will still be a /

ACCOUNTS OF NATIONAL PENSION SCHEME

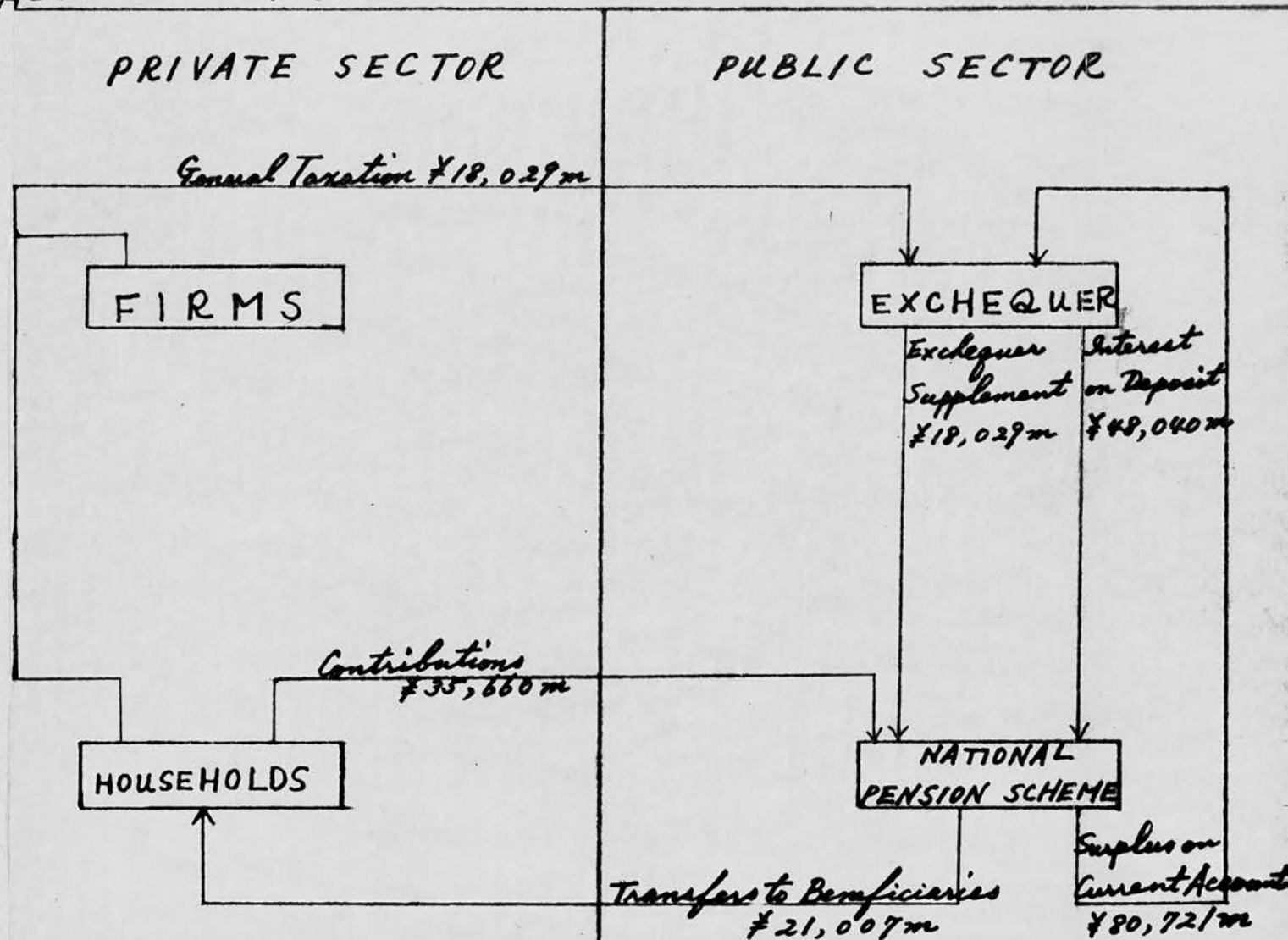


DIAGRAM 7

a predominantly important surplus creation mechanism. This is the reason why we have to consider the effect of the surplus investment in the analysis of the National Pension Scheme (See Chapter V). As is shown in the diagram, it can be clearly seen, again, that the main function of the scheme is a reserve creating machinery and a supplier of a fiscal fund for industry, etc. It is thus rather astonishing that this scheme is regarded as one of the main political means of increasing and enlarging social security, and of advancing the "Welfare State". The main function even in 15 years' time is not at all the welfare of the insured.

Though we do not know for certain, if the present financial mechanism is maintained, the surplus of the Scheme will in the future be deposited to the Trust Fund Bureau Special Account and will be operated in the Fiscal Investment and Loan Programme. The increasing trend of the pension surplus will affect the policy considerations of the Fiscal Investment and Loan Programme.¹ A part of the surplus may be utilized for the construction investment of welfare facilities, workers houses, hospitals, etc. The ratio of 25 per cent of the surplus, adopted for the fiscal year 1961,

1.

See also Chapter V, Section 4.

may continue for a considerable period, in view of political conditions.² Here we introduce an estimation of future trends of revenue and expenditure of the National Pension Scheme calculated by the Ministry of Welfare.^(Table 10) The figures in our previous diagram are obtained from this estimation. As we see in the Table, the reserve accumulation of the National Pension Scheme will increase at a very high rate in the future. It will nearly amount to ¥1 billion in 1975. The annual surplus of the Scheme is also expected to grow over the coming 30 years. The total revenue of the Scheme will exceed double the expenditure during the same period, thus making the reserve creation, i.e., the supply of fiscal funds, greater than the total of transfer payments to the beneficiaries. (As to the significance of this magnitude in the national economy, and the comparison of the reserve accumulation and the annual increase of reserve of the Scheme with the scale of the total Fiscal Investment and Loan Programme etc. these are given in Chapter V, Section 3).

A short explanation will be given on the assumptions on which this estimate is based. The main assumptions of this estimate are³

- 1) For compulsory entrants of the scheme, 70 per cent are

2. As to its criticisms, See Chapter V, Section 4 and also Chapter VI.

3. The Reference Material issued in conjunction with the National Pension Scheme Bill, 1959. Ministry of Welfare.

ESTIMATION OF FUTURE TRENDS IN THE INCOME AND EXPENDITURE OF THE NATIONAL PENSION SCHEME

(1,000 m. yen)

Items Year	Revenue					Expenditure		Net increase of the Fund for the Fiscal year	Holdings of Accumulation
	Contribution Revenue	Interest Revenue	Exchequer Supplement	Deficit Supplement	Total	Old Age Pension	Total		
1961	25.2	1.0	12.6	0.2	39.0	-	-	-	39.0
1965	29.5	11.0	14.8	0.2	55.5	-	2.0	53.5	233.2
1970	35.5	27.7	17.8	0.2	81.2	-	8.5	72.7	554.5
1980	37.0	70.4	18.5	0.2	126.1	23.2	41.0	85.1	1,357.1
1990	37.7	118.5	18.8	0.2	175.2	61.1	82.5	92.8	2,260.0
2005	35.2	181.1	17.6	0.2	234.1	147.8	173.6	60.4	3,412.8
2025	31.9	176.2	15.9	0.2	224.2	230.3	253.7	29.5	3,276.1

TABLE 10

1. Assumptions are explained in the text.

SOURCE: Ministry of Welfare

able to contribute, and 85 per cent of these contributions due are collected.

- 2) For voluntary entrants, one third of these join in the scheme and the collection rate is 100 per cent.
- 3) The Exchequer Supplement contains 199 million yen of the special supplement, in addition to the original amount of one half of contribution revenues, fixed in the National Pension Act, 1959.
- 4) The interest rate is 5.5 per cent.
- 5) Eighty-five per cent of the contributors are fully qualified as beneficiaries, and 70 per cent will actually be paid.
- 6) Some other technical assumptions of minor interest are omitted.

Apart from the general problem of the difficulty of future estimates, on the whole these assumptions seem to be underestimates. First of all, in item 1), only 70 per cent of contributors are assumed to be able to contribute. This is an underestimate, particularly as a long term estimate, because a high rate of economic growth is more likely to make the present contribution rate (¥100 (= 2 shillings) or ¥150 a month) a negligible amount to the future income of contributors.⁴ Even in the short run, the experience since April, 1961 (i.e. the time when the collection of contributions

⁴. For further discussions, See Chapter V, Section 3.

started), those incapable of contributing were only about 10 per cent of contributors.⁵ Secondly, in the same item 1), 85 per cent of those contributions due are assumed to be collected. This also seems to be too low as a long term estimate. The actual figure obtained between the 1st April and the 31st October, 1961, is expected to be already around 86.5 per cent.⁶ Thirdly, judged by past experience, the interest rate will be higher than the assumed rate of 5.5 per cent. The Special Exchequer Supplement in item 3), inserted conventionally for the sake of calculation, will more likely not be required, though the people engaged in the estimates were aware that the interest revenue may be greater than the estimates.⁷ Expenditure will not become fully operational for a long time, and as a whole, the actual reserve is more likely to increase above the figure of this estimate.⁸ Moreover, the scale of each budget item of the Scheme, as well as the coverage, is more likely to increase in the near future. Further discussions are given in Chapter V, Section 3.

To bridge the analysis of this chapter to the demand

5. This information is supplied from Mr. Fuchiwaki, of the Ministry of Welfare in his letter of November, 1961.

6. The research result of the Ministry of Welfare on the 31st October, 1961. Supplied from Mr. Fuchiwaki, See Note 5.

7. In the note of the estimates, this point is mentioned.

8. The actual result for the first year, however, will only become clear in April, 1962.

analysis following we will show the expected future financial impact of the National Pension Scheme in a flow of funds diagram with algebraic figures. This is to evade the arbitrariness in assuming magnitudes which are nearly completely subject to temporal government policies, such as the distributive ratio of the fund between the private and the public sectors, and yet we can show the actual mechanism of the flow of funds in the diagram. Above all, this simplified diagram will make the following analysis more easy to approach. (Diagram 8)

Having looked at the place of the finance of the Welfare Pension Insurance and the National Pension Scheme in greater detail than in any other previous study, we can proceed to theoretical analysis, and the application of income determination theory and growth theory to the Japanese case.

FLOW OF FUNDS OF NATIONAL PENSION SCHEME

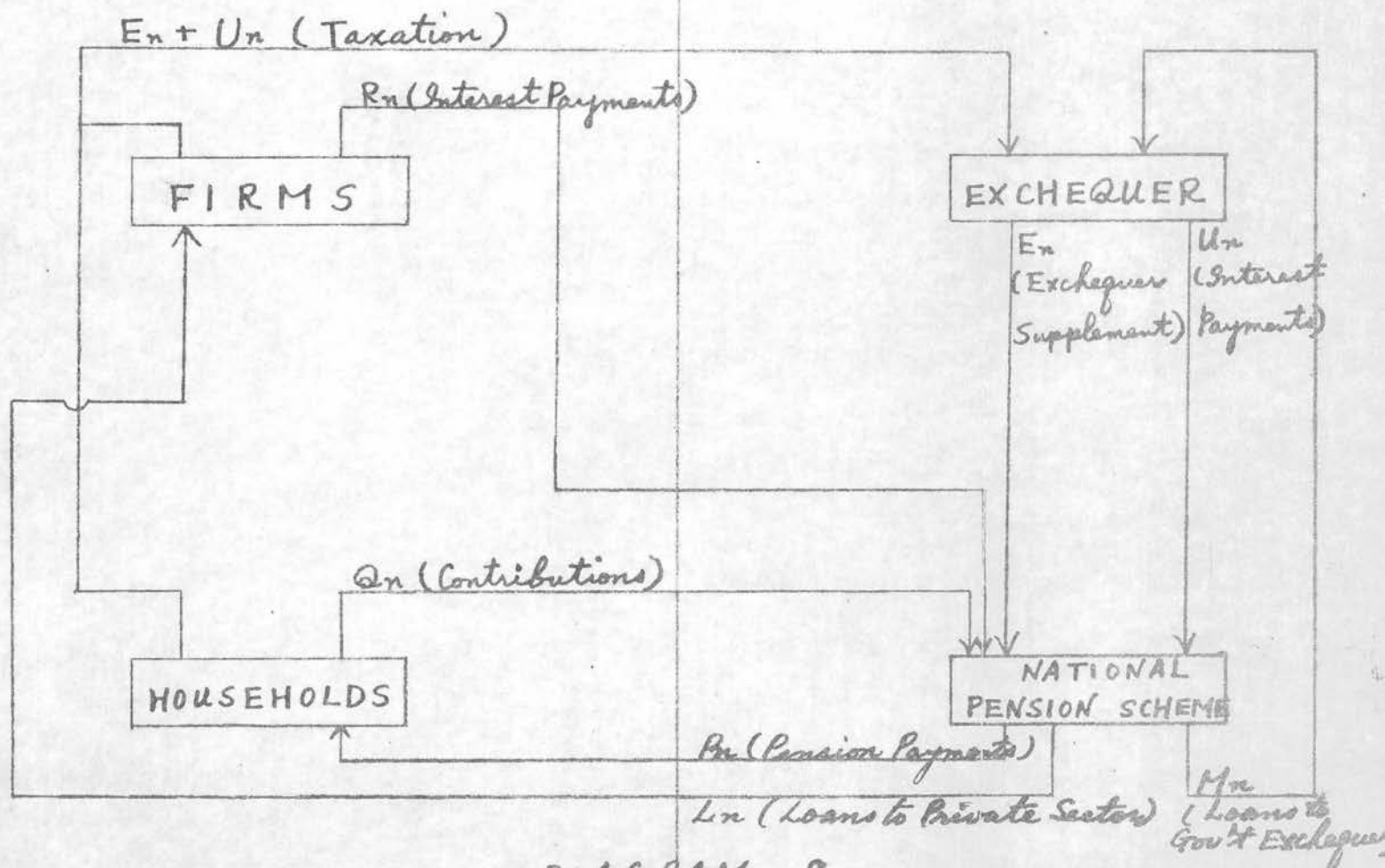


DIAGRAM 8

$$\begin{aligned}
 \text{The revenue} &= (Q_n + E_n + U_n) + R_n \\
 &= P_n + (L_n + M_n) = \text{The expenditure of the pension scheme}
 \end{aligned}$$

1. Accounts of Welfare Insurance Special Account

Apart from the items which are self-evident, the following items needed a special analysis:

1. Pension Sub-Account.

(i) Transfers to the Seamen's Insurance Special Account

(¥1 m) and one third of transfers to the National Public

Service Mutual Aid Association (about ¥ 22 m) are deposited (as reserves) to the Trust Fund Bureau Special Account. In view of their economic function, these are included in Surplus on Current Account.

(ii) The rest is used for the construction of welfare facilities etc. for the benefit of the insured of certain Mutual Aid Associations, and therefore, is included in Purchase of Goods and Services, except repayment of contributions (¥ 7 m) which is deducted from contributions.

2. Miscellaneous Revenues (¥5 m). The repayment of the pensions by pensioners to the Pension Scheme and the unreceived cheque for pension payments are deducted from Transfers to Beneficiaries.

3. Transfer Payment from the Seamen's Insurance Special Account

(¥1 m): This comes from the general revenue of the Seamen's Insurance Special Account. Since a predominant magnitude of the contribution revenue is in the revenue account of the same Special Account, this part is assumed to have come from the contribution revenue.

2. Business Sub-Account

1. Expenditures for Welfare Facilities: The amount (¥498 m) transferred from the Pension Account is used for

for the welfare facilities related to the Welfare Pension Insurance Scheme. Therefore, this part is included in the Purchase of Goods and Services. Double accounting is evaded with the transfer to Business Account from Pension Account.

(2) Administrative Expenses (¥2,962 m); Expenses for the Construction of Offices (¥295 m); Expenses for the Construction of Houses of Government Officials (engaged in the administration of the three social insurance schemes (¥11 m)); and Emergency Reserves (¥40 m) are managed mixedly, and treated to be non-divisible.¹

Moreover expenses for the Offices of the National Pension Scheme (¥118 m) are deducted from the Expenditure item of Expenses for the Construction of Offices (¥295 m) since the latter includes the former, apart from the expenses for the other two health insurances.²

Administrative Expenses directly supplied by a transfer from Health Account (¥143 m) are deducted from Administrative Expenses to be financed by general revenues (¥2,962 m).³

1. The reply of the Ministry of Finance to the enquiry of the divisibility of these items were, "it is non-divisible".

2. Budget of the State, ibid., p. 713 and p. 92.

3. Budget of the State, ibid., p. 713.

If we assume that the thus adjusted expenditure items are distributed to the three Schemes proportional to their benefit payment expenses, we can obtain the figures corresponding to the Welfare Pension Insurance Scheme, e.g., Expenses for the Construction of Offices, corresponding to the Welfare Pension Insurance Scheme are obtained as, Budget Figure (¥295 m) - Other Purpose (¥118 m) = Actual Expenses for Three Social Insurances (¥182).

A = Benefit Payments for Health Insurance ¥72,542 m.

B = " " for Daily Workers Health Insurance, ¥5,939 m.

C = " " for Welfare Pension Insurance, ¥10,575 m.

The corresponding figure = $¥182 \frac{C}{A+B+C} = ¥22 \text{ m.}$

This is included in the Purchases of Goods and Services shown in a line from "Welfare Pension Insurance Scheme" to "Firms" in the diagram.

(3) Miscellaneous Revenues (¥527 m): These are mostly composed of late charge for contributions, and treated as contributions, with a very small exception of taxation.

(4) Emergency reserves in both of the two Sub-Accounts are conventionally included in administration.

Revenues are distributed in the same way as above.

These are the additional explanations on the treatment /

treatment of figures of Welfare Insurance Special Account.

2. Interest Revenue of Welfare Insurance Special Account.

Interest payments from the private sector and the public sector to the Welfare Insurance Special Account are derived in the following manner. (All for the fiscal year 1959, unit: ¥ m).

(1) Total interest revenue of the Pension Sub-Account of the Welfare Insurance Special Account paid through the Trust Fund Bureau Special Account (A) is

A = 18,695 (Source: Budget of State, 1959, *ibid.*, p. 712)

(2) Total interest revenue of the Trust Fund Bureau Special Account (B) is

B = 103,044 (Source: Statistics of Financial Bureau, Ministry of Finance).

(3) Total loan for welfare facilities specifically financed by a certain proportion of the Welfare Pension Insurance Scheme Surplus (C), (hereafter will be called simply welfare facilities), is

C = 51,700 (Source: *ibid.*, at the end of the fiscal year 1959).

(4) Total of the Trust Fund Bureau Special Account funds (D) is

D = 1,711,230 (Source: *ibid.*, at the end of the fiscal year 1959).

(5) The proportion of C over D, (E), $\frac{C}{D} = E \div 3.02\%$

(6) Interest revenue (of Welfare Insurance Special Account) corresponding /

corresponding to loans to welfare facilities (F) is obtained as $F = B \times E = 103,044 \times 0.0302 \div 3,113$.

Differences in interest rates are neglected.

(7) Distribution of loans for welfare facilities (C) between the public sector (G) and the private sector (H).

$$G = 17,500$$

$$H = 34,200 \quad (\text{Source: } \textit{ibid}).$$

where $G + H = C = 51,700$.

(8) Proportion of the loans given to welfare facilities in the public sector to the total loans given to welfare facilities (I) and the proportion of loans given to welfare facilities in the private sector to total loans given to welfare facilities (J).

$$I = \frac{G}{G+H} = \frac{G}{C} = \frac{17,500}{51,700} \div 33.85\%$$

$$J = \frac{H}{G+H} = \frac{H}{C} = \frac{34,200}{51,700} \div 66.15\%$$

(9) Distribution of the interest revenue from loans for welfare facilities between the public sector (K) and the private sector (L).

$$K = F \times I = 3,113 \times 0.3385 \div 1,054$$

$$L = F \times J = 3,113 \times 0.6615 \div 2,059$$

where $K + L = F = 3,113$.

(10) Distribution of the total interest revenue of the Trust Fund Bureau Special Account (B) between the public sector (M) and the private sector (N).

M /

$$M = 60,949$$

$$N = 42,095 \quad (\text{Source: } \textit{ibid}).$$

(11) Distribution of the total interest revenue of the Trust Fund Bureau Special Account after the deduction of the loans for welfare facilities (P) between the public sector (Q) and the private sector (R).

$$P = B - F = 103,044 - 3,113 = 99,931$$

$$Q = M - K = 60,949 - 1,054 = 59,895$$

$$R = N - L = 42,095 - 2,059 = 40,036$$

where $P = Q + R$.

(12) Proportion of the loans to the public sector to the total loans, excluding the loans to the welfare facilities, (S) and the proportion of the loans to the private sector to the total loans, excluding the loans to the welfare facilities (T)

$$S = \frac{Q}{Q+R} = \frac{Q}{P} = \frac{59,895}{99,931} \div 59.94\%$$

$$T = \frac{R}{Q+R} = \frac{R}{P} = \frac{40,036}{99,931} \div 40.06\%$$

(13) Distribution of the interest revenue of the Welfare Insurance Special Account, excluding the interest revenue on loans for the welfare facilities (U) between the public sector (V) and the private sector (W)

$$U = A - F = 18,695 - 3,113 = 15,582$$

$$V = U \times S = 15,582 \times 0.5994 \div 9,340$$

$$W = U \times T = 15,582 \times 0.4006 \div 6,242$$

where /

where $U = V + W$

(14) Distribution of the total interest revenue of the Welfare Insurance Special Account between the public sector (X) and the private sector (Y)

$$X = V + K = 9,340 + 1,054 = 10,394$$

$$Y = W + L = 6,242 + 2,059 = 8,301$$

where $X + Y = B = 18,695$.

(15) Surplus on current account of the Pension Sub-Account of the Welfare Insurance Special Account (Z_1) and the increase in deposit from the Welfare Insurance Special Account in the Trust Fund Bureau Special Account (Z_2).

$$Z_1 = 65,569 \quad (\text{Source: Budget of the State, ibid. p.712}).$$

$$Z_2 = 56,500$$

The difference is caused by discrepancies of accounting periods.

(16) Distribution of the total interest revenue of the Welfare Insurance Special Account, corresponding to the increase in deposit from the Welfare Insurance Special Account in the Trust Fund Bureau Special Account, (B^1), between the public sector (X^1) and the private sector (Y^1).

$$X^1 = X \times \frac{Z_2}{Z_1} = 10,394 \times \frac{56,500}{65,569} \div 8,956$$

$$Y^1 = Y \times \frac{Z_2}{Z_1} = 8,301 \times \frac{56,500}{65,569} \div 7,153$$

where $B^1 = X^1 + Y^1 = 16,109$ (See Diagram 7).

These analyses were obtained from information and statistics supplied by the Ministry of Finance.

CHAPTER III. THE NATIONAL PENSION SCHEME AND NATIONAL EXPENDITURE

Section 1. Introduction

The object of this chapter is to give a theoretical analysis of the effect of the National Pension Scheme on national expenditure. A statistical illustration of the model built in this chapter follows in Chapter IV. Thus, these two chapters consider the effect of the Scheme on demand.

Section 2 of the present chapter is concerned with preparatory analysis. Following a brief indication that the scheme affects not only demand, but also supply, the impact effect of the National Pension Scheme on national expenditure is analysed with the aid of simple social accounting representations and algebra. Starting from the simplest case of contributions and pension payments, explanations are given of the analytical complications caused by the introduction of the Exchequer Supplement, the interest payments from the public sector, the investment of the surplus, and the interest payments from the private sector.

Section 3 deals with the building of a comparative static income determination model which illustrates the effect of the National Pension Scheme on national expenditure.

A comparative static model with a pay-as-you-go system of contributions proportional to income is analysed in the Appendix to this chapter.

Section 2. Preparatory Analysis

First of all, a pension scheme affects national expenditure by causing changes in consumption and in investment via income redistribution among contributors, tax payers, business firms, the

Government Exchequer, and pensioners. The changes are also multiplied through time. These are the effects on the aggregate demand.

Secondly, a scheme affects supply indirectly via the changes in the aggregate demand, and sometimes directly via its effects on the levels and the ratios of savings and investment. These are the effects on the aggregate supply. We shall consider the supply side in Chapter V.

The aggregate demand analysis concerns itself, first and foremost, with the impact effect on national expenditure, i.e. how expenditure on consumption and investment are affected by the scheme and how this effect varies according to the composition of the financing of the scheme and of the expenditure structure. (So as not to be involved in the problem as to whether or not full employment is reached and whether supply automatically adjusts itself to changes in demand in the short run, we shall be concerned with changes in money national income.)

In the simplest case, changes in national expenditure are caused by income redistribution between contributors and pensioners. According to whether the decrease of consumption of contributors due to the levy of contributions for the pension scheme is more, the same, or less than the increase of consumption of pensioners due to the pension receipts from the scheme, the changes in consumption take negative, zero, or positive values. The size of the changes in expenditure is determined firstly by the size of contributions and pension payments, secondly, by the ratio of contributions and pension payments, and thirdly, by the marginal propensities to consume of contributors and of pensioners. The impact effect differs according to the different methods of financing contributions, i.e., whether a flat rate or an income proportional contribution

system is adopted. As a flat rate contribution system is adopted in the National Pension Scheme of Japan, contributions are here assumed to be determined independently of national income unless otherwise stated. With the aid of social accounting and algebra, the impact on expenditure can be analysed in the following ways.

Revenue	Expenditure
Contributions Q	Pension Payments P
	Surplus S
Total Q	Total P + S

Table 1.

$$\Delta Y = -c Q + c' P \quad (1)^1$$

where ΔY are the impact changes in income, Q are contributions, P are pension payments, and c and c' are the marginal propensities to consume of contributors and pensioners, respectively.

Contributions (Q) reduce the disposable income of contributors, and hence decrease the consumption expenditure of contributors by $c Q$ and pension payments (P) increase the disposable income of pensioners and hence increase the consumption expenditure of pensioners by $c'P$. The impact effect is the summation of these two.

¹ Formula (1) shows the impact changes in income due to the introduction of the pension scheme. It does not consider the case where the contribution rate is raised in any existing scheme. Therefore, the contribution (Q) is equal to the increase in contributions ΔQ , since the contribution before the scheme is zero.

$Q - 0 = \Delta Q \therefore Q = \Delta Q$. (Similarly for pension payments).

The marginal propensity to consume of pensioners is assumed to be either greater than, or equal to, the marginal propensity to consume of contributors. ($c' \geq c$). The surplus of the scheme is assumed not to be invested at the moment and the consequential multiplier effect will be neglected.

The greater the ratio of P to Q, and the greater c' and the smaller c , the greater will be ΔY . If $\frac{c'}{c} \geq \frac{Q}{P}$, $\Delta Y \geq 0$. As the balance of the revenue (contributions) and the expenditure (pension payments) is surplus S,

$$S = Q - P \quad (2)$$

By replacing P and S,

$$P = Q - S \quad (3)$$

If formula (3) is inserted into formula (1),

$$\begin{aligned} \Delta Y &= -c Q + c'(Q - S) \\ &= Q \left\{ -c + c' \left(1 - \frac{S}{Q}\right) \right\} \end{aligned} \quad (4)$$

The smaller the ratio of S to Q, the greater the impact effect due to a unit of contribution revenues.

If $\frac{c'}{c} \leq 1 - \frac{S}{Q}$, $\Delta Y \leq 0$.

If no surplus is assumed,

$$S = 0 \quad (5)$$

Then formula (1) is altered to

$$\begin{aligned} \Delta Y &= -c Q + c'P \\ &= Q(c' - c) \end{aligned} \quad (6)$$

If $c' > c$, $\Delta Y > 0$. $c' = c$, $\Delta Y = 0$.

Thus we find that if no surplus is formed, the introduction of the pension scheme either increases national expenditure (when the marginal propensity to consume of pensioners is greater than

that of contributors) or has no effect on the expenditure level (when the marginal propensity to consume of pensioners is equal to that of contributors). In the former case the pension scheme has an inflationary effect on the economy. However, if a surplus is formed, the effect of the pension scheme may be deflationary. Whether or not the scheme is deflationary depends on the ratio of the marginal propensity to consume of pensioners to that of contributors, and the ratio of the surplus to contributions. If these two marginal propensities to consume are equal, any surplus formation will cause a deflationary effect. But if the marginal propensity to consume of pensioners is sufficiently great compared with that of contributors, the scheme may cause an increase in consumption expenditure, in spite of the formation of a surplus. More precisely, if the ratio of the marginal propensity to consume of pensioners to that of contributors is greater than the ratio of contributions to pension payments, the effect will be inflationary.

The first complications arise when the Exchequer Supplement is introduced into the scheme. If the consumption expenditure side is considered alone, the changes in income are caused by the income redistribution among contributors, taxpayers and pensioners. The effect differs according to whether the Exchequer Supplement is financed out of an increase of taxation, by deficit financing, or out of the yearly surplus, but here it is assumed to be financed by a new increase of general taxation. Even when the financing method of the Exchequer Supplement is assumed to be an increase of taxation, the effect of the scheme corresponding to a unit of the size of budget differs according to the way in which the amount of the Exchequer Supplement is decided.

Suppose that general taxation is proportional to national income. Then the tax rate is built in the formula of the coefficient which stipulates the multiplier effect. In the same way, if the amount of the Exchequer Supplement is decided as a fixed proportion to national income, this rate is built in the formula of the coefficient. But if the amount of the Exchequer Supplement is decided as independent of the size of national income, then, even although it is financed out of general taxation, its functional relation to income is the same as a flat rate contribution.

In the case of the National Pension Scheme of Japan, the amount of the Exchequer Supplement is decided as a fixed proportion to the flat rate contribution revenues. So the Exchequer Supplement is fixed as independent of national income. In this case, the Exchequer Supplement causes a decrease in the multiplicand, i.e. in the size of the impact effect, via a decrease of the consumption expenditure of tax payers through a decrease of the disposable income of the same. Expressed in social accounting form, it is written as,

Revenue	Expenditure
Contributions Q	Pension Payments P
Exchequer Supplement E	Surplus S
Total Q + E	Total P + S

Table 2.

$$\begin{aligned}
 \Delta Y &= -c Q - c E + c' P \\
 &= -c (Q + E) + c' P
 \end{aligned}
 \tag{7}$$

where E is the Exchequer Supplement and other symbols are the same as before. The marginal propensities to consume of contributors and of tax payers are assumed to be the same here. So a unit of contributions and a unit of the Exchequer Supplement have the same effect on the impact changes in income on these assumptions.

The second complication arises when interest payments from the public sector are introduced. If it is assumed that the Exchequer pays interest on the total fund, the interest amount is decided by the interest rate and the surpluses of the present and past periods. On the one hand, contributions, the Exchequer Supplement, and pension payments are decided as independent of national income. So each surplus, and consequently, the total fund is decided as independent of national income. On the other hand, the interest rate is assumed to be independent of income level. Consequently, the interest payments from the public sector are fixed independently of national income. If it is assumed that these are all financed out of a new increase of general taxation, the effect of these interest payments is exactly the same as the effect of the Exchequer Supplement. Moreover, as both the Exchequer Supplement and the interest payments from the public sector are financed out of a new increase in general taxation, and thus supplement the receipts of the pension scheme, it may be more appropriate to regard both as an Exchequer Supplement, because the economic nature of these two are exactly the same. The only difference is that the amount of the original Exchequer Supplement is decided as a fixed proportion to contribution revenues (around $\frac{1}{2}$ in the Japanese case), while the amount of the interest payments is decided as a proportion to the accumulation

of reserves. So, while the former revenue remains considerably stable, the latter increases rapidly in the later stages of the scheme. At any rate, if these are listed in social accounting form, (separately, at the moment), it becomes as follows:

Revenue	Expenditure
Contributions Q	Pension Payments P
Exchequer Supplement E	Surplus S
Interest Payments from the Public Sector U	
Total Q + E + U	Total P + S

TABLE 3.

$$\begin{aligned}
 \Delta Y &= -cQ - cE - cU + c'P \\
 &= -c(Q + E + U) + c'P
 \end{aligned}
 \tag{8}$$

where U are the interest payments from the public sector and other symbols remain unchanged. The marginal propensities to consume of contributors and tax payers are assumed to be the same. As can be seen in formula (8), the effect of a unit of the Exchequer Supplement E and that of the interest payments from the public sector U, are exactly the same as that of a unit of contributions Q on the conditions and the assumptions adopted so far. So it is possible to summarize these three revenue items into one social security tax T. The relation can be written as

$$T = Q + E + U \tag{9}$$

So these three will be treated as one social security tax in the following analysis, until it becomes necessary to isolate the interest payments from the public sector U from the other two when the numerical examination of the impact effect is attempted in the next chapter. This will be necessary because the projected figures for the interest payments from the public sector U are lacking, and only the projection of the total interest revenue, which include a large amount of the interest payments, from the private sector, is known. Leaving this discussion to a later stage of this thesis, if Table 3 is simplified by the summation of these three revenue items,

Revenue		Expenditure	
Social Security Tax	T	Pension Payments	P
		Surplus	S
Total	T	Total	P + S

TABLE 4.

$$\Delta Y = -cT + c'P \quad (10)$$

The result is exactly the same as formula (1) except that contributions Q are substituted by social security tax T in formula (10). So the same explanations of the effect of the ratio of Q and P on the size of the impact effect is applicable to that of the ratio of T and P. The economic implications explained in that context as inflationary and deflationary effects are applicable to the above case.

It has been assumed so far that surplus is accumulated and not spent. However, if the assumption is altered to the effect that the surplus of the fund is invested by the government, the impact on the national expenditure is accordingly altered. An accounting form and formula of an impact effect are altered as

Revenue	Expenditure
Social Security Tax T	Pension Payments P
	Surplus Investment I^S
Total T	Total $P + I^S$

TABLE 5.

$$\Delta Y = -cT + c'P + I^S \quad (11)$$

where I^S is the surplus investment, i.e., the investment financed by the surplus fund, and other symbols remain unaltered. All the surplus is assumed to be invested in the above formula². Then $I^S = S$, where S is the surplus. (For the sake of simplicity, the distinction between revenue account and capital account is not listed in the Table).

As from Table 5 $T = P + I^S$ and from the assumption $c \leq c'$, formula (11) is altered as

$$\begin{aligned} \Delta Y &= -c(P + I^S) + c'P + I^S \\ &= P(c' - c) + I^S(1 - c) \end{aligned}$$

As $1 \geq c' \geq c$ by the assumption, $\Delta Y \geq 0$. (only when $c' = c = 1$, $\Delta Y = 0$).

² For the case where the surplus is not assumed to be invested in its entirety see Further Complications 1

If the above mathematical demonstrations are explained in more general terms, these become as follows. Even if a surplus is formed, yet if all the surplus is invested, then the effect of the pension scheme is inflationary, so long as the marginal propensity to consume of contributors is less than unity.

The last of the complications arises when the surplus fund is not only invested in the public sector but also is partly loaned to and invested in the private sector. If this happens, a part of the interest payments comes from the private sector. In the simplest social accounting representation, the relation can be expressed as follows.

Revenue	Expenditure
Social Security Tax T	Pension Payments P
Interest Payments from the Private Sector R	Surplus Investment I^S
Total $T + R$	Total $P + I^S$

TABLE 6.

These interest payments from the private sector R cannot be treated in the same way as the interest payments from the public sector which are financed out of an increase in general taxation. The simplest assumption will be that all the interest payments from the private sector are financed out of the undistributed corporate profits. This means that these interest payments cause the same amount of decrease in the business savings. However, it may be difficult to assume that no shift of incidence takes place at all.

If the distributive ratio of business savings to personal income is assumed to remain constant, then it may be appropriate to assume that this new increase of burden to the business firms will finally be borne in the same proportions as the distribution ratio of the undistributed corporate profits to personal income.³ If this assumption is made, the interest payments from the private sector cause a decrease of the private investment via the undistributed corporate profits by the amount of bR , and, at the same time, a decrease of consumption of personal income by the amount of $c(1-b)R$. If these relations are inserted into the social accounting representation, it is altered as:

Revenue	Expenditure
Social Security Tax T	Pension Payments P
Interest Payments from $(1-b)R$ Personal Income	Surplus Investment I^S
Interest Payments from bR Undistributed Corporate Profits	
Total $T + R$	Total $P + I^S$

TABLE 7.

The impact effect of the pension scheme on the national expenditure is written as

³ For alternate treatments of the interest payments from the private sector relaxing the present assumptions, see Further Complications 2.

$$\begin{aligned}
 \Delta Y &= -cT - c(1-b)R + c'P + I^S - bR \\
 &= \left[c'P - c\{T + (1-b)R\} \right] + \left[I^S - bR \right] \quad (12)
 \end{aligned}$$

where $(1 - b)$ is the distributive ratio of personal income to national income, $(1 - b)R$ is the decrease of personal income due to the interest payments from the private sector, b is the distributive ratio of the undistributed corporate profits to national income, bR is the decrease of investment via the undistributed corporate profits, and other symbols remain unaltered. The marginal propensity to consume of contributors, of tax payers, and of the personal income sector at large is assumed to be the same, c .⁴ The decrease in investment out of the undistributed corporate profits is assumed to be equal to the decrease in the undistributed corporate profits.⁴

The first part of formula (12) represents the impact changes in consumption and the latter half represents the impact changes in investment. The summation of them is the total impact effect which is multiplied through the multiplier processes.

Surplus investment I^S in formula (12) is obtained as the difference between the total revenue (which is the summation of social security tax and interest payments from the private sector) and pension payments. That is $I^S = (T + R) - P$.

Surplus investment in formula (11) is obtained as the difference between social security tax and pension payments. That is

$$I^S = T - P.$$

⁴ See footnote 3. p.

So if social security tax minus pension payments ($T - P$) is expressed as I_1 , surplus investment after the introduction of the interest payments from the private sector, i.e., I^S in formula (12) becomes as $I^S = T - P + R = I_1 + R$. If this is inserted into formula (12),

$$\begin{aligned}\Delta Y &= c' P - c \left\{ T + (1 - b) R \right\} + (I_1 + R) - b R \\ &= (c' P - c T + I_1) + \left\{ -c(1 - b) R + (1 - b) R \right\} \\ &= (c' P - c T + I_1) + (1 - b)(1 - c) R\end{aligned}\quad (13)$$

The item in the first bracket of formula (13) represents the changes in income due to the pension scheme without the interest payments from the private sector. So this naturally corresponds to formula (11) and takes, as a rule, a positive sign. This can be demonstrated as follows. From Tables 6 and 7,

$$T + R = P + I^S = P + I_1 + R.$$

$$\therefore T = P + I_1.$$

If this is inserted into the item in the first bracket of formula (13),

$$\begin{aligned}c' P - c T + I_1 &= c' P - c (P + I_1) + I_1 \\ &= (c' - c) P + (1 - c) I_1 \\ &\geq 0 \quad (\because 1 \geq c' \geq c)\end{aligned}$$

The latter item of formula (13) represents the changes in income due to the introduction of the interest payments from the private sector. $c(1 - b) R$ is the decrease in consumption in personal income, $b R$ is the decrease in investment via undistributed corporate profits, and R is the increase in surplus investment via interest revenue from the private sector. As is seen in formula (13), this item can be rearranged in one item.

As $b < 1$, $c \leq 1$, $(1 - b)(1 - c)R \geq 0$.

This means that the introduction of the interest payments from the private sector increases national expenditure, so long as the marginal propensity to consume of contributors is less than unity. The total impact effect of this type of scheme is the summation of these two. Formula (13) becomes as

$$\begin{aligned}\Delta Y &= (c'P - cT + I_1) + (1 - b)(1 - c)R \\ &= (c' - c)P + (1 - c)I_1 + (1 - b)(1 - c)R \\ &\geq 0.\end{aligned}$$

This means in general terms that if all the surplus is invested, the effect of the pension scheme with interest payments paid by the private sector has an inflationary effect on the economy, so long as the marginal propensity to consume of contributors is less than unity.

If it is assumed that the same amount of revenue R is raised by an increase in social security tax, instead of raising it in the form of the interest payments from the private sector, the impact becomes as

$$-cR + R = (1 - c)R \quad (14)$$

where cR is the decrease in consumption in personal income and R is the increase in surplus investment. On the other hand, the impact effect of the interest payments from the private sector R is expressed as (as in formula (13))

$$-c(1 - b)R + R - bR = (1 - b)(1 - c)R \quad (15)$$

In order to compare the impact effects of these two cases, formula (14) minus formula (15) is obtained as

$$(1 - c)R - (1 - b)(1 - c)R = (1 - c)bR \geq 0 \quad (16)$$

This implies that the impact effect of the financing by social security tax is greater than that of the financing by the same amount of the interest payments from the private sector.

In other words, the introduction of the interest payments from the private sector causes an inflationary effect on the economy, but a unit effect, i.e., an effect corresponding to a unit of the scale of the budget, will be decreased. The less the proportion of the interest payments from the private sector compared to social security tax, the more will be a unit effect of the pension scheme.

From formula (16), the difference of the impact effects of the two cases is

$$(1 - c) b R .$$

The greater b and the smaller c , the greater the difference of the impact effects.

In general terms, this is such that the more the ratio of undistributed corporate profits to national income and the less the marginal propensity to consume of tax payers, the more will be the decrease of a unit effect by the interest payments from the private sector.

The analysis so far has been an explanation of the impact effect of the pension scheme on national expenditure. This is the preparatory analysis to clarify the treatment of the components of the income determination model and thus to pave the way for an exercise in model building. The analysis has been limited to the changes in the aggregate demand. It concerned itself with the short run impact of the scheme. However, the actual effect of the pension scheme is not limited to the demand side. Moreover, as has been found in past years, the increase in investment may be the chief

function of the National Pension Scheme for a considerably long period. As has been analysed previously, if the surplus of the scheme is invested, the scheme will cause an increase in the total investment of the economy if the investment in the private sector is not reduced because of the pension scheme.

This causes an increase in investment demand as was analysed. But the effect is not limited to this. The increase in investment creates supply, as well as demand. The increase in supply may bring about a higher rate of economic growth than would otherwise be the case. If the ratio of the surplus investment is big, the economic structure may be altered towards higher investment. This may cause a higher growth rate, but some other problems may be generated. These are the long term effects. The productivity may be different according to the forms of investment.

Further Complications

1. The Surplus-Investment Ratio

If it is assumed that a part of the surplus is invested and a part is kept behind as an accumulation of reserves, then the relation is altered as,

Revenue		Expenditure	
Social Security Tax	T	Pension Payments	P
		Surplus Investment	I^s
		Net Surplus	S'
Total	T	Total	$P + I^s + S'$

TABLE 8

$$\begin{aligned}\Delta Y &= -cT + c'P + I^S \\ &= -cT + c'P + \lambda S\end{aligned}\quad (17)$$

where I^S is the investment financed out of surplus, λ is the ratio of investment out of surplus, ($I^S = \lambda S$), and S is total surplus, ($S = I^S + S'$).

As the net surplus is expressed as S' , λ can be obtained as follows.

$$\lambda = \frac{I^S}{S} = \frac{I^S}{I^S + S'}.$$

The introduction of λ may be appropriate when the surplus formation of the pension scheme is too large to be met by the investment demand of the economy. If in the later stage of the pension scheme the surplus formation becomes very large, while the rate of economic growth becomes very small, then this introduction of λ may become appropriate.

However, so far as the present economic conditions and the near future are concerned, the demand for the investment fund is very strong. The present rate of interest on the fiscal funds is still less than that on loans through private financial organisations. Moreover, the investment opportunities of fiscal funds are much affected by the government economic policy. The government can, to a certain extent, create these opportunities according to the supply of funds. The need to increase social indirect capital, such as roads and harbours, to strengthen fundamental industries, such as electricity and iron and steel, etc. will be increased still further in the future. In view of these it may be appropriate to assume that all the surplus is invested for the moment. This means $\lambda = 1$.

The introduction of λ may become appropriate in a scheme

primarily designed so as to work against business fluctuations. That is to say when the economy is "sagging" the government inserts investment expenditures by utilizing the pension surplus, and when the economy is inflationary the government damps down the excess demand of the economy by putting aside a part or all of the surplus as an accumulation of reserves. In these types of schemes, λ becomes a strategic variable against business fluctuations. However, there are also many other weapons of fiscal policy to adjust business fluctuations, apart from the complicated mechanism of the pension scheme. It may not be necessary to complicate the analysis by inserting ~~the~~ this variable λ . In this chapter, as was assumed by the legislators of the National Pension Act, 1959, all the surplus is assumed to be invested.

2. The Interest Burden paid by the Private Sector

Broadly speaking there are three possible patterns by which the burden of the interest payments from the private sector will be distributed. Firstly, all may be financed out of undistributed corporate profits, secondly, a part may be financed out of undistributed corporate profits and a part out of personal income, and thirdly, all may be financed out of personal income.

Interest is paid on the government loans to industries - loaned directly or indirectly through government financial organisations, to industries. Private enterprises pay the interest. Suppose that entrepreneurs paid interest out of undistributed corporate profits. If entrepreneurs do not try to supplement this decrease of undistributed corporate profits, the burden of the interest payments will be finally settled there. However, if entrepreneurs try to shift a part or all of the interest burden to other factors so that they may keep the balance of undistributed corporate profits, the problem of

the shift of incidence arises. There are several factors which need to be taken into consideration in analysing the shift of incidence of the burden of the interest payments paid by the private sector.

The first of these is the shift of a part or all of the burden to wages and salaries. (Hereafter referred to as wages). In a country where trade union pressures are not strong and the disguised unemployment is wide spread, this shift of incidence of an extra burden to wages may easily occur. If the proportion of self-financing capital of companies in the investment source is low and if both the government and entrepreneurs are endeavouring to increase this proportion, entrepreneurs may try hard to minimise the decrease of undistributed corporate profits and to shift any extra burden to other factors. These conditions are partly applicable to the Japanese economy. So a part of the incidence of the interest burden may thus be shifted to wage earners. This can either take the form of an actual reduction of wages, or a stoppage or postponement of an increase in wages, or reduction in the rate of an increase in wage bills than would otherwise be the case. Generally speaking, because of the special nature of wages (in that they do not easily decline), the shift will take the latter form. At any rate, if the burden is shifted to wages, the final economic effect will be a decrease in wages, and consequently a decrease in the consumption of wage earners, instead of a decrease in investment via a decrease in undistributed corporate profits.

Suppose that the ratio of the shift of the incidence of the interest burden to wages is w , ($0 \leq w \leq 1$). If the marginal propensity to consume of wage earners is c , then the decrease in consumption of wage earners is $c w R$. (R is the total interest payments paid by the private sector). If the remaining parts of the interest burden

are financed by the undistributed corporate profits, the total impact effect due to the interest payment from the private sector is the summation of the decrease in consumption of wage earners by $c w R$ and the decrease in investment of the undistributed corporate profits by $(1 - w) R$. (The latter is altered to $u' (1 - w) R$, if an investment ratio out of the undistributed corporate profits (u') is inserted, where $0 \leq u' \leq 1$).

If the difference in the marginal propensities to consume of different income strata is introduced, and if the marginal propensity to consume of the i strata is expressed as c_i , and the distribution ratio of the interest burden to the i strata is as w_i , then the total decrease in consumption becomes as $\sum_i c_i \cdot w_i \cdot w R$. If the marginal propensity to consume of the high income strata is smaller than that of the low income strata, and if the total amount of the shift of the interest burden is assumed to be fixed, then the more the proportion to the high income strata, the less the decrease in consumption, and consequently, the more the total impact effect of the pension scheme will be.

Secondly, a part of the burden of the interest payments may be shifted to the dividend. Under conditions such that the rate of industrial growth is small, the rate of profitability of firms is low, and the rate of dividend is low, the shift to the dividends may be difficult in view of the relation of the dividend and the interest returns. On the other hand, under the circumstances where the industrial growth is rapid, the rate of profitability of firms is big and the rate of dividend is much bigger than the interest rate on deposit, this shift may emerge.

If the marginal propensity to consume of shareholders is c_f and the ratio of the shift of the interest burden to the dividend is

f, the decrease of consumption becomes $cf \cdot f \cdot R$. If c_f is assumed to be the same as the marginal propensity to consume of personal income at large c , the decrease of consumption becomes $c \cdot f \cdot R$.

Thirdly, the shift of the incidence of the interest burden may take the form of a reduction of returns to entrepreneurship. If the enterprises obtaining loans from the government via the increased fund supply of the pension scheme are profitable, the profit of the enterprise may be greatly increased above that which would otherwise be the case. Under these circumstances, this type of shift of incidence may be possible. However, in the case when the investment is profitable in the long run but is not so in the short run - there seems to be many of these possibilities in the long term loans of the fiscal funds - this shift may not be likely to occur. At any rate, if this shift occurs and if the marginal propensity to consume of profit receivers is expressed as c_p and the rate of the shift of the interest burden to entrepreneurial profit as p , the decrease of consumption becomes $c_p \cdot p \cdot R$. If c_p is equal to c (the marginal propensity to consume of personal income at large), this becomes $c \cdot p \cdot R$. However, in general c_p is smaller than c , and consequently $c_p \cdot R$ than $c \cdot R$. So the more the shift of the incidence of the interest burden to entrepreneurial profit, for a given fixed amount of shift to personal income, the less the decrease in consumption will be and the more the total impact effect of the pension scheme will become.

Fourthly, the interest burden may be shifted to consumers via a rise in prices. If the consumption demand is inelastic and the protection of consumers is not sufficient, entrepreneurs may try to cover the burden by an increase in the prices of the consumption goods. This may take the form of postponement or reduction in the

rate of price reduction due to the reduction of cost by new investment and technical development. Consumer reaction may be negligible in this latter case. However, this shift may not easily occur if competition in the market is very severe. Nevertheless, if this shift does occur, the consumption function may alter unless consumers simply maintain their consumption expenditure in money terms (money illusion case). Saving may also be affected. Thus an attempt by entrepreneurs to shift the interest burden to the prices of consumption goods may not result in a simple shift of the interest burden to consumers.

Fifthly, however, there is an argument about disregarding the negative effect of the interest payments in the income determination model. The only possible explanation for this treatment may be, though it has not been explained clearly in the previous studies in Japan, that the interest payments are the cost elements. According to this opinion, as the government loan is usually a reliable long term, and cheap rate loan, this loan itself means a kind of protection policy, so it is not necessary to treat the interest payments as a negative element. By this argument, no negative sign of the interest payments R appears in the model. This implies that the degree of interest rates does not affect the income generation at all. However, this view may cause an imbalance in the treatment in that the interest payments from the government sector are treated as the increase in taxation and those from the private sector are disregarded in the analysis. Moreover, a fiscal loan is usually a long term credit and the loan is reloaned again and again, so in substance the fiscal loan can be understood, as it were, a government subsidy accompanied by a negative element in the name of interest payments.

If the fiscal loan can be thus understood, it seems to be

correct to analyse the increase in investment due to the subsidy as a positive effect on the one hand and the interest payments from the private sector as a negative effect on the other hand and to understand that the summation of these two are the real impact of the interest payments from the private sector.

In the Kimura Study⁵ the negative effect of the interest payments which we have analysed is totally neglected.⁶ In this point the Kimura Study does not analyse the difference in the utilization of the fiscal funds supplied through the pension surplus, i.e., the difference between the loan to the public sector and the loan to the private sector.

So the Kimura Study does not consider that the interest payments levied on the loan to the public sector may be financed out of general taxation. The Kimura Study simply says, without these analyses of the difference between the loans, that the surplus causes an increase in investment, and no interest burden in the normal sense⁷ appears in the model. So it may not be sufficient

⁵ See Introduction, footnote 2. footnote .

⁶ More precisely, the Kimura Study neglects all interest payments except those required by the government to subsidize the pension scheme. This subsidization is due to the difference between the interest rate foreseen in the tentative plan and the actual return from the Trust Fund Bureau Special Account. This difference would have been caused by the expected interest rate on the pension reserves falling short of the actual return (7.5% per annum). The Kimura Study analysed the subsidy suggested in the plan as a means of bridging this gap. For further discussion of the Kimura Study, see Chapter VI.

⁷ See footnote 6. .

just to point out the imbalance of the treatment of the interest payments, if the analysis of the Kimura Study on this point is to be criticised. However, more fundamentally, the fiscal investment and loan are designed to fill the gaps which will emerge under free enterprise conditions, if all the investment decisions are left to the private entrepreneurs. The fiscal investment and loan supplement and strengthen these sectors where sufficient funds cannot be expected from private investment alone, but also it is essentially necessary to develop these sectors, if a balanced growth of the national economy is to be sought after at all. These are investment and loan which embody policy objectives of the government. Consequently, there are many investments and loans which are not primarily profitable. These include the enlargement of social overhead capital such as the improvements in roads and harbours, the key industries which need a large amount of long term loans, such as electricity, and investment with social policy objectives.

It also seems very clear that it is adequate to treat these interest payments from the government affiliated organisations such as the National Railway - which shows a large deficit each year and receives a large amount of state subsidy via taxation revenue - as, in reality, financings by an increase in taxation. The same may be said as to the public works, such as land improvement, etc., which are carried through the government expenditures. It seems not to be correct simply to neglect the effect of the interest payments in the model and also it seems not to be adequate to say that by neglecting this effect a part of the induced effects are built into the analysis, by being taken into the production effect.⁸

⁸ The Kimura Study, *ibid.*, p. 78.

So in the following analysis the interest payments from the private sector will be built-in in the model.

Sixthly, a part or all of the burden of the interest payments may be financed out of undistributed corporate profits. This means that not all of the interest burden or no part of the burden will be shifted to personal incomes. Suppose that the condition of perfect competition obtains and that it is not possible to shift the interest burden to consumers in the short run via an increase of prices. Suppose that the pressure of trade unions for an increase in wages is very strong and that the shift of the burden to wages cannot be expected. Adding to these, suppose that the demand for funds is very great so that the shift of the burden to dividends cannot be achieved. If entrepreneurs do not part with the increased profits under these conditions, the extra interest payments will be financed as a decrease in undistributed corporate profits. If, in this case, undistributed corporate profits generally generate new investment, then the above decrease in the undistributed corporate profits causes the same amount of decrease in investment. Algebraically, if all the interest payments from the private sector R are financed by a decrease in undistributed corporate profits, the decrease in investment is R . If the ratio by which the interest burden is financed out of undistributed corporate profits is u , the decrease in investment due to the interest payments from the private sector R becomes $u R$. (where $0 \leq u \leq 1$). Furthermore, if the ratio of the investment realization out of undistributed corporate profits is ϵ , the above decrease in investment due to the interest payments becomes $\epsilon u R$. A decrease in investment due to a unit increase in interest burden is ϵu in this context.

The ratio u by which the interest payments from the private sector are financed by a decrease in undistributed corporate profits is decided by several factors as was analysed above. The most typical cases are the ones where u is unity ($u = 1$) and the case where u is equal to d ($u = d$). In this latter case, d is the ratio of undistributed corporate profits to national income effected before the introduction of the relation of the interest payments from the private sector on the pension loan. The first one when $u = 1$ is the case when all the interest payments from the private sector are financed out of undistributed corporate profits and no shift of incidence of the interest burden to personal income happens. As the fiscal fund is generally reliable, long term, and cheap rate, the profits of firms may increase considerably. If it is regarded as necessary to finance the interest payments from the private sector totally out of this newly increased corporate profits, the assumption of $u = 1$ will follow. Under this assumption, the effect of the interest payments from the private sector is decided by factors such as, the scale of the surplus formation of the pension scheme, the interest rate, and the ratio of the investment realisation out of undistributed corporate profits, but not by the ratio of undistributed corporate profits to national income. This means that it is not necessary to build in the finance of business savings into the model. As no effect on personal income is involved, the impact effect can be expressed very distinctly in the model. If the decrease in undistributed corporate profits is assumed to cause an equal amount of decrease in investment, the decrease in investment by the interest payments from the private sector is R . If the ratio of the investment realization of undistributed corporate profits is λ , this becomes λR . The total impact of the introduction

of the pension scheme on national expenditure becomes as follows, under the assumptions that all the surplus formation is invested and the decrease of undistributed corporate profits causes the same amount of decrease in investment.

$$\begin{aligned}\Delta Y &= -cT + c'P + I^S - R \\ &= (c'P - cT) + (I^S - R)\end{aligned}\tag{18}$$

(compare with formula (12) in the text).

However, the above assumption of $u = 1$ is based on the assumption that the interest payments from the private sector on the pension fund alter the relative place of personal income and undistributed corporate profits. It may be difficult to expect no shift of incidence of the interest burden to take place. The supply of long term, and cheap rate investment funds by way of fiscal funds may work favourably not only for business profits, but also for other factors of personal income. It is possible to assume that the interest burden is also borne in the same way both by personal income and business savings. In an economy like Japan, where pressure of trade unions for a higher share is not so strong, where a large amount of concealed unemployment exists, and where entrepreneurs are trying very hard to increase undistributed corporate profits, this shift of a part of the burden to personal income is more likely to occur. Suppose that the burden of the interest payments from the private sector is borne by undistributed corporate profits and personal income in proportion to their distribution ratio. This means that the distribution ratio of the undistributed corporate profits and personal income is assumed to remain constant before and after the interest payments from the private sector. Under this assumption, the investment by business savings will be reduced from bY to $b(Y - R)$, by the amount of bR .

In the same way, the consumption by personal income will be reduced from $c(1 - b) Y$ to $c(1 - b)(Y - R)$, by the amount of $c(1 - b) R$. (where b is the ratio of undistributed corporate profits to national income, $(1 - b)$ is that of personal income, R are the interest payments from the private sector, and Y is national income). The total impact effect is the summation of the decrease in consumption of tax payers via a social security tax ($c T$), the increase in consumption of pensioners ($c'P$), the increase in investment via surplus formation (I^S), and the decrease in investment ($b R$) and in consumption $c\{(1 - b)R\}$ via interest payments from the private sector.

$$\begin{aligned}\Delta Y &= -c T + c' P + I^S - b R - c(1 - b) R \\ &= \left[c'P - c \{T + (1 - b) R\} \right] + \left[I^S - b R \right] \quad (19)\end{aligned}$$

This is the relation obtained in formula (12) in the text. The model building in the next section will follow this treatment.

Section 3. Building a Comparative Static Income Determination Model¹

The analysis of this section is limited to a flat rate contribution system. A model in the case of an income proportional system is shown in the appendix.

¹ An example is shown in Kimura, K. and others, *ibid.* As to its appraisals and criticisms, see Introduction, Further Complications 2 of Section 2 of Chapter III, and also Chapter VI.

Assumptions.

- (1) The surplus of the scheme is all invested.
- (2) The distribution of national income between undistributed corporate profit and personal income remains constant, before and after interest payments from the private sector.
- (3) The Exchequer Supplement and interest payment of Government Exchequer are financed by an increase in taxation.
- (4) Foreign trade is neglected.
- (5) Induced Investment is neglected.

A Comparative Static Income Determination Model (all in period n)

Before the introduction of the pension scheme, national income may be represented as follows:

$$\bar{Y}_n = C_n + I_n + \bar{G}_n \quad (1)$$

where \bar{Y}_n is national income, C_n is consumption, I_n is investment and \bar{G}_n is Government expenditure.

One of the aims is to build undistributed corporate profits into the national income model.

$$\text{Therefore } \bar{Y}_n = O_n + S_n \quad (2)$$

where O_n is personal income and S_n is undistributed corporate profits. From assumption (3), S_n / O_n remains constant, so

$$S_n = b\bar{Y}_n \quad (3)$$

where b is a rate of undistributed corporate profits to national income.

$$C_n = c(\bar{Y}_n - t\bar{Y}_n - b\bar{Y}_n) + \bar{C}_0 \quad (4)$$

where t is general tax rate, $t\bar{Y}_n$ is general taxation, $b\bar{Y}_n$ is undistributed corporate profits, c is M.P.C. and \bar{C}_0 is autonomous consumption.

$$I_n = I_n^b + \bar{I}_n \quad (5)$$

where I_n^b is private investment financed by undistributed corporate profit, \bar{I}_n is autonomous investment.

$$I_n^b = b\bar{Y}_n \quad (6)$$

From formulæ (1), (4), (5) and (6)

$$\bar{Y}_n = c (\bar{Y}_n - t\bar{Y}_n - b\bar{Y}_n) + \bar{C}_o + b\bar{Y}_n + \bar{I}_n + \bar{G}_n$$

$$\bar{Y}_n = \frac{1}{1 - c(1 - t - b) - b} (\bar{I}_n + \bar{G}_n + \bar{C}_o) \quad (7)$$

Consider now the national income after the introduction of the pension scheme:

$$Y_n = C_n + I_n + \bar{G}_n \quad (8)$$

For the sake of simplicity, the social security tax, i.e., total taxation revenue to finance the pension scheme is expressed as T_n

$$Q_n + E_n + U_n = T_n \quad (9)$$

where Q_n are contributions, E_n is taxation to finance Exchequer Supplement, U_n is taxation to finance interest payments of Government Exchequer to pension scheme.

$$S_n = b Y_n \quad (10)$$

where S_n is undistributed profit. The decrease of personal income caused by interest payments (R_n) of private sector to pension scheme is $R_n (1 - b)$, so

$$C_n = c \{ Y_n - tY_n - b Y_n - R_n(1-b) - T_n \} + c' P_n + \bar{C}_o \quad (11)$$

where c is M.P.C., c' is M.P.C. of pensioners, P_n is pension payments.

$$I_n = I_n^b + I_n^s + \bar{I}_n \quad (12)$$

where I_n^b is private investment financed by undistributed profits. I_n^s is investment of the surplus of pension scheme and \bar{I}_n is autonomous investment.

$$I_n^b = b (Y_n - R_n) \quad (13)$$

$$I^S_n = T_n + R_n - P_n \quad (14)$$

$$Y_n = c \left\{ Y_n - tY_n - b Y_n - R_n(1-b) - T_n \right\} + c' P_n + \bar{C}_o + b(Y_n - R_n) \\ + T_n + R_n - P_n + \bar{I}_n + \bar{G}_n$$

$$Y_n = \frac{T_n(1-c) + R_n(1-b)(1-c) - P_n(1-c') + \bar{I}_n + \bar{G}_n + \bar{C}_o}{1 - c(1 - t - b) - b} \quad (15)$$

Changes in national income caused by pension scheme may be represented as follows:

From the formula (15) - (7)

$$Z_n = Y_n - \bar{Y}_n = \frac{T_n(1-c) + R_n(1-b)(1-c) - P_n(1-c')}{1 - c(1 - t - b) - b} \quad (16)$$

Examination of Z_n

On the conditions when both denominator (A_n) and numerator (B_n) of formula (16) are positive, Z_n becomes positive.

(denominator)

$$A_n = 1 - c(1 - t - b) - b \\ = (1 - b) - c(1 - b) + ct \\ = (1 - b)(1 - c) + ct > 0$$

Because $b < 1$ and $c \leq 1$.

(numerator)

The M.P.C. of pensioners is bigger than, or at least the same, as, the M.P.C. of the economy as a whole.

So $c' \geq c$, then

$$B_n = T_n(1-c) + R_n(1-b)(1-c) - P_n(1-c') \geq T_n(1-c) + R_n(1-b)(1-c) - P_n(1-c) \\ = (T_n - P_n)(1 - c) + R_n(1 - b)(1 - c)$$

If $T_n \geq P_n$, then $B_n \geq 0$ (even if $T_n < P_n$, if $\frac{R_n}{P_n - T_n} \geq \frac{1}{1-b}$ then $B_n \geq 0$)

If $c' = 1$, then

$$B_n = T_n (1 - c) + R_n (1 - b)(1 - c) \geq 0$$

If $c' = c$, then

$$\begin{aligned} B_n &= T_n (1 - c) + R_n (1 - b)(1 - c) - P_n(1 - c') \\ &= T_n (1 - c) + R_n (1 - b)(1 - c) - P_n(1 - c) \\ &= \{T_n + R_n (1 - b) - P_n\} (1 - c) \end{aligned}$$

If $T_n + R_n (1 - b) \geq P_n$, then $B_n \geq 0$.

The alteration of the assumption (3)

If the Exchequer Supplement and the interest payments of the Government Exchequer are financed by way of cutting down other government expenditures, the formula (15) is altered to

$$\begin{aligned} Y_n &= c \{Y_n - tY_n - b Y_n - R_n(1 - b) - Q_n\} + c' P_n + \bar{C}_0 + b(Y_n - R_n) \\ &\quad + (T_n + R_n - P_n) + \bar{I}_n + (\bar{G}_n - \bar{E}_n - \bar{U}_n) \end{aligned} \quad (17)$$

where contribution Q_n is the only increase of taxation to finance the pension scheme and $(\bar{G}_n + \bar{E}_n - \bar{U}_n)$ is the reduced government expenditure.

As $T_n = Q_n + \bar{E}_n + \bar{U}_n$,

$$Z_n = \frac{Q_n(1 - c) + R_n (1 - b)(1 - c) - P_n (1 - c')}{1 - c (1 - t - b) - b} \quad (18)$$

(A deficit financing is not a practical assumption in the Japanese case).

The Implications of Z_n

The formula (16) can be written as

$$Z_n = \frac{1}{(1-c)(1-b) + ct} \left[\{(c'P_n - cT_n) - c(1-b)R_n\} + \{(T_n + R_n - P_n) - bR_n\} \right]$$

$(c'P_n - cY_n)$ is the change in consumption via pension payments and taxation revenue and $-c(1-b)R_n$ is the decrease in consumption via interest payments of firms to the pension scheme. These two present primary changes in consumption.

$(T_n + R_n - P_n)$ is the increase in investment via the surplus formation of the pension scheme. It will ever be increasing for the coming 30 years. $-bR_n$ is the decrease in private investment via interest payments of business firms to pension scheme. These two represent primary changes in investment. Both consumption and investment are multiplied by the multiplier.

$$\text{If } c' = c, \text{ then } B_n = \{(T_n + R_n - P_n) - bR_n\}(1 - c)$$

Total effect of the pension scheme on the growth of national income may increase as the first item increases in comparison with the second. A detailed examination of the impact effect is dealt with in the next chapter.

APPENDIX TO CHAPTER III

A Comparative Static Income Determination Model in the Case of an Income Proportional Contribution System

A pay-as-you-go plan is assumed, assumption (1) in the text is removed, and other assumptions remain unchanged.

Then National income before the pension scheme is obtained as follows:

$$\bar{Y}_n = C_n + I_n + \bar{G}_n \quad (1)$$

where \bar{Y}_n is national income, C_n is consumption, I_n is investment and \bar{G}_n is Government expenditure.

For the purpose of comparison with the result of a flat rate contribution system, undistributed corporate profits S_n is left in the model. (Apart from that consideration, this model can be built without introducing business savings).

$$\bar{Y}_n = O_n + S_n \quad (2)$$

where O_n is personal income and S_n is undistributed corporate profits.

$$S_n = b\bar{Y}_n \quad (3)$$

where b is a rate of undistributed corporate profits to national income.

$$C_n = c (\bar{Y}_n - t\bar{Y}_n - b\bar{Y}_n) + \bar{C}_o \quad (4)$$

where t is general tax rate, $t\bar{Y}_n$ is general taxation, $b\bar{Y}_n$ is undistributed corporate profits, c is M.P.C. and \bar{C}_o is autonomous consumption.

$$I_n = I_n^b + \bar{I}_n \quad (5)$$

where I_n^b is private investment financed by undistributed corporate profits; \bar{I}_n is autonomous investment.

$$I_n^b = b\bar{Y}_n \quad (6)$$

From formula (1), (4), (5) and (6)

$$\begin{aligned} \bar{Y}_n &= c (\bar{Y}_n - t\bar{Y}_n - b\bar{Y}_n) + \bar{C}_o + b\bar{Y}_n + \bar{I}_n + \bar{G}_n \\ \bar{Y}_n &= \frac{1}{1 - c(1 - t - b) - b} (\bar{I}_n + \bar{G}_n + \bar{C}_o) \end{aligned} \quad (7)$$

National income after the pension scheme is obtained as follows:

$$Y_n = C_n + I_n + \bar{G}_n \quad (8)$$

The social security tax, i.e., total taxation revenue to finance the pension scheme is expressed as T_n . There exists no interest revenue.

$$Q_n + E_n = T_n \quad (9)$$

where Q_n is income proportional contributions and E_n is taxation to finance Exchequer Supplement. Assume that E_n is decided at a fixed proportion to Q_n .

$$Q_n = a_1 Y_n, \quad E_n = a_2 Q_n = a_3 Y_n$$

$$T_n = a_1 Y_n + a_3 Y_n = (a_1 + a_3) Y_n = a Y_n \quad (10)$$

where a_1 , a_2 , a_3 and a are constant coefficients. As "pay-as-you-go" plan is adopted,

$$P_n = T_n = a Y_n \quad (11)$$

where P_n is pension payments.

$$S_n = b Y_n \quad (12)$$

where S_n is undistributed profit. (As no interest payment is paid, there occur no changes in S_n .)

$$C_n = c (Y_n - tY_n - bY_n - aY_n) + c' . aY_n + \bar{C}_o \quad (13)$$

where c is M.P.C., c' is M.P.C. of pensioners and aY_n on the right is pension payments.

$$I_n = I_n^b + \bar{I}_n \quad (14)$$

where I_n^b is private investment financed by undistributed profits and \bar{I}_n is autonomous investment.

$$I_n^b = bY_n \quad (15)$$

From formula (8), (13), (14) and (15),

$$Y_n = c(Y_n - tY_n - bY_n - aY_n) + c' aY_n + \bar{C}_o + bY_n + \bar{I}_n + \bar{G}_n$$

$$Y_n = \frac{\bar{I}_n + \bar{G}_n + \bar{C}_o}{1 - c(1 - t - b - a) - c'a - b} \quad (16)$$

Changes in national income caused by the pension scheme are obtained as follows:

From the formula (16) - (7)

$$\begin{aligned} Z_n = Y_n - \bar{Y}_n &= \frac{\bar{I}_n + \bar{G}_n + \bar{C}_o}{1 - c(1 - t - b - a) - c'a - b} - \frac{\bar{I}_n + \bar{G}_n + \bar{C}_o}{1 - c(1 - t - b) - b} \\ &= \frac{a(c' - c)(\bar{I}_n + \bar{G}_n + \bar{C}_o)}{\{1 - c(1 - t - b - a) - c'a - b\} \{1 - c(1 - t - b) - b\}} \quad (17) \end{aligned}$$

Examination of Z_n

$$\begin{aligned} \text{denominator } A_n &= \{1 - c(1 - t - b - a) - c'a - b\} \{1 - c(1 - t - b) - b\} \\ &= \{1 - b - a - c(1 - t - b - a) + a(1 - c')\} \{(1 - c)(1 - b) + ct\} \\ &= \{(1 - c)(1 - b - a) + ct + a(1 - c')\} \{(1 - c)(1 - b) + ct\} > 0, \end{aligned}$$

because $1 \geq c$, $1 \geq b + a$, $1 \geq c'$ and $ct > 0$.

$$\text{numerator } B_n = a(c' - c)(\bar{I}_n + \bar{G}_n + \bar{C}_o)$$

If $c' > c$, then $B_n > 0$, if $c' = c$, $B_n = 0$.

So long as M.P.C. of pensioners is bigger than M.P.C. of the economy as a whole, Z_n is always positive.

The alteration of the assumption

If the Exchequer Supplement is financed by way of cutting down other government expenditures, formula (16) is altered to

$$Y_n = c(Y_n - tY_n - bY_n - a_1Y_n) + c'.aY_n + \bar{C}_0 + bY_n + \bar{I}_n + (\bar{G}_n - a_3Y_n) \quad (18)$$

where a_1Y_n is the contribution which is the only increase of taxation to finance the pension scheme, a_3Y_n is the Exchequer Supplement and $(\bar{G}_n - a_3Y_n)$ is the reduced government expenditure.

$$Y_n = \frac{\bar{I}_n + \bar{G}_n + \bar{C}_0}{1 - c(1 - t - b - a_1) - c'a - b + a_3} \quad (19)$$

$$Z_n = Y_n - \bar{Y}_n = \frac{\{(c' - c)a_1 - (1 - c')a_3\}(\bar{I}_n + \bar{G}_n + \bar{C}_0)}{\{1 - c(1 - t - b - a_1) - c'a - b + a_3\}\{1 - c(1 - t - b) - b\}} \quad (20)$$

From definitions and assumptions, $(1 \geq c' \geq c, 1 > t + b, \text{ and}$

$a = a_1 + a_3)$, it can be proved that the denominator of formula (20)

is either greater than, or equal to, that of formula (17), while

the numerator of the former is either smaller than, or equal to

that of the latter. (The calculation processes are omitted).

In consequence, the multiplier effect is reduced (in general) in

the case of financing via reducing other government expenditures

(Z_n in formula (20)) in comparison with the financing via increas-

ing taxation (Z_n in formula (17)). This is the other way of

expressing that the demand effect of the tax reduction is smaller

than that of the equal increase of government expenditure.

The implications of Zn

In both items of the denominator of Zn of formula (17), the formula $\{1 - c(1 - t - b) - b\}$ is included. This is also the denominator in the case of a flat rate contribution system and the reverse of this is a multiplier in the case of no pension scheme. If tax rate t and corporate profits rate b are fixed, and also c is given, then $\{1 - c(1 - t - b) - b\}$ is a constant and can be expressed by K .

$$1 - c(1 - t - b) - b = K,$$

where K is a constant, then the formula (17) can be written as

$$Z_n = \frac{a(c' - c)(\bar{I}_n + \bar{G}_n + \bar{C}_o)}{\{K - a(c' - c)\}K} = \frac{\bar{I}_n + \bar{G}_n + \bar{C}_o}{\left\{\frac{1}{a(c' - c)} - \frac{1}{K}\right\}K^2} \quad (21)$$

From formula (21), Z_n is an increasing function of three factors, i.e., (1) a social security tax rate (proportion of contribution plus Exchequer Supplement to national income) (a), (2) the difference between M.P.C. of pensioners and M.P.C. of the economy ($c' - c$), (3) and other autonomous factors \bar{I}_n , \bar{G}_n , and \bar{C}_o which show the scale of the economic activity of the nation. The difference between the "pay-as-you-go" system and the "reserve-investment" system is that the former has no increase in investment and the effect of the pension scheme on the economic growth consists primarily and finally of the changes in consumption.

The consumption increase is caused by an income redistribution between different M.P.C. strata of pensioners and tax payers, the magnitude of the effect depending both on the scale of the pension scheme and the scale of the economy. Consequently the magnitude of the effect on the growth rate of the economy depends on the scale of the pension scheme, apart from M.P.C. difference. Needless to say,

if M.P.C.'s are the same, there will be no effect on the economic growth.

A Simplified Model Without Business Savings.

(Before Pension Scheme) $\bar{Y}_n = \bar{C}_n + \bar{I}_n + \bar{G}_n$

$$= c(\bar{Y}_n - t\bar{Y}_n) + \bar{I}_n + \bar{G}_n + \bar{C}_0 \quad (22)$$

(After pension scheme) $Y_n = c(Y_n - tY_n - aY_n) + c'.aY_n + \bar{I}_n + \bar{G}_n + \bar{C}_0$
(23)

(Changes in income) $Z_n = Y_n - \bar{Y}_n = \frac{\bar{I}_n + \bar{G}_n + \bar{C}_0}{1-c(1-t-a)-c'a} - \frac{\bar{I}_n + \bar{G}_n + \bar{C}_0}{1-c(1-t)}$ (24)

$$= \frac{a(c' - c)(\bar{I}_n + \bar{G}_n + \bar{C}_0)}{\{1-c(1-t-a)-c'a\}\{1-c(1-t)\}} \quad (24')$$

If $1 - c(1 - t) = K'$, then

$$Z_n = \frac{\bar{I}_n + \bar{G}_n + \bar{C}_0}{\left\{ \frac{1}{a(c' - c)} - \frac{1}{K'} \right\} K'^2} \quad (24'')$$

CHAPTER IV

STATISTICAL ILLUSTRATION

Section 1. Introduction

The object of this chapter is to give a statistical illustration of the impact effect of the National Pension Scheme embodied in the model.

Section 2 develops the model of the impact effect so as to adapt it to the classification of the government projection. It shows the projection figures in a simple social account form; and analyses whether or not the impact effect takes a positive sign, whether or not it is greater in later years than in the base year, and what is the trend of the effects throughout the years.

Section 3 analyses the composition of the impact effect according to the changes in investment and in consumption. Each analysis is carried out from the three aspects above mentioned.

Section 4 analyses the trend of a unit effect from the three aspects.

The results of the analyses of each Section are shown in a simplified table.

Section 5 details the tentative conclusion derived from these analyses.

Section /

Section 2. Total Impact Effect

The impact effect (A_n) of the National Pension Scheme is obtained as the multiplicand of formula (16) of Section 3 of Chapter III.

$$A_n = T_n(1 - c) + R_n(1 - b)(1 - c) - P_n(1 - c')(1)$$

Where A_n is the impact effect, T_n is the social security tax, R_n are the interest payments from the private sector, P_n are pension payments, c and c' are the marginal propensities to consume of the economy as a whole and of pensioners, respectively, and b is the distributive ratio of the undistributed corporate profits to national income. Formula (1) is built up of three items of different economic natures, i.e., the social security tax, the interest payments from the private sector, and pension payments. This is a suitable approach to a theoretical analysis. However, the figures available in the government projection may not necessarily concur with this classification of factors suitable for theoretical analysis. As a matter of fact though pension payments (P_n) are available from the projection, the social security tax (T_n) and the interest payments from the private sector (R_n) are not available as such. Instead of which, contributions (Q_n), the Exchequer Supplement (E_n), and the total interest payments (V_n), which include both /

both the interest payments from the public sector (U_n) and those from the private sector (R_n), are available. So formula (1) must be altered.

The social security tax (T_n) is by definition the summation of contributions (Q_n), the Exchequer Supplement (E_n), and the interest payments from the private sector (R_n).

$$T_n = Q_n + E_n + R_n \quad (2)$$

The total interest payments (V_n) are the summation of the interest payments from the public sector (U_n) and those from the private sector (R_n).

$$U_n + R_n = V_n \quad (3)$$

If the ratio of the interest payments from the private sector (R_n) to the total interest payments (V_n) is assumed to be constant (d),

$$R_n = dV_n \quad (4)$$

From formulae (2), (3), and (4), formula (1) is altered to

$$\begin{aligned} A_n &= (Q_n + E_n + U_n)(1 - c) + R_n(1 - b)(1 - c) - P_n(1 - c') \\ &= (Q_n + E_n)(1 - c) + (U_n + R_n)(1 - c) - R_nb(1 - c) - P_n(1 - c') \\ &= (Q_n + E_n)(1 - c) + V_n(1 - c) - dV_n \cdot b(1 - c) - P_n(1 - c') \\ &= \left\{ (Q_n + E_n)(1 - c) - P_n(1 - c') \right\} + V_n(1 - bd)(1 - c) \quad (5) \end{aligned}$$

In order to obtain general conclusions, the trend of formula (5) is examined with the aid of the projections, without /

without committing ourselves to the specific magnitudes of the coefficients, c , c' , b and d .

Before going into the statistical illustration, we will show the projection figures in social accounting form. We will also draw them in a diagram. This is designed to show which factors of the revenue and the expenditure of the pension scheme will, at any given time, become important. The projection shows that for the first twenty years after the introduction of the Scheme, the most important function is surplus formation. This will increase during the coming thirty and more years, and then decrease so as to become negative in about 50 years' time. Interest revenue is negligible in the initial years, and then begins to increase rapidly. This will be the most important single item after 1985 until 2015, (when pension payments become most important). Contributions and the Exchequer Supplement, though they are important during the initial years, show relatively constant trends and sharply lose their ratios to the total budget of the Scheme. Pension payments are negligible in initial years, and will gradually increase in the future.

Now that we have clarified the composing factors of revenue /

Revenues and Expenditures of the National Pension Scheme, 1961 - 2025.

(1 million yen)

Revenue (Year)	1961	1965	1970	1975	1980	1985	1990	1995	2005	2015	2025
Q Contributions	25,183	29,548	35,546	35,660	37,027	37,933	37,692	37,154	35,182	31,937	31,868
E Exchequer Supplement	12,790	14,973	17,972	18,029	18,713	19,165	19,045	18,776	17,790	16,167	16,133
V Total Interest Revenue	1,030	11,018	27,719	48,040	70,367	93,701	118,503	142,241	181,103	193,540	176,225
Q+E+V Total Revenue	39,003	55,538	81,237	101,728	126,107	150,799	175,240	198,170	234,075	241,644	224,225
Expenditure (Year)	1961	1965	1970	1975	1980	1985	1990	1995	2005	2015	2025
P Pension Payments	---	2,021	8,535	21,007	41,030	60,692	82,488	114,231	173,627	260,868	253,720
S ₂ Surplus	39,003	53,517	72,702	80,721	85,077	90,106	92,752	83,939	60,397	Δ19,225	Δ29,497
P+S Total Expenditures	39,003	55,538	81,237	101,728	126,107	150,799	175,240	198,170	234,075	241,644	224,225
W Total Accumulation of Reserve	39,003	233,191	554,481	938,010	1,57,053	1,75,553	2,26,026	2,698,824	3,412,786	3,604,650	3,276,066

TABLE 7.

1. As to assumptions, See Chapter II Section 5.

Source: Rearranged from statistics found in Reference Material issued in conjunction with the National Pension Bill, 1959, Ministry of Welfare.

Revenues and Expenditures of the National Pension Scheme, 1961-2025

(¥1,000m)

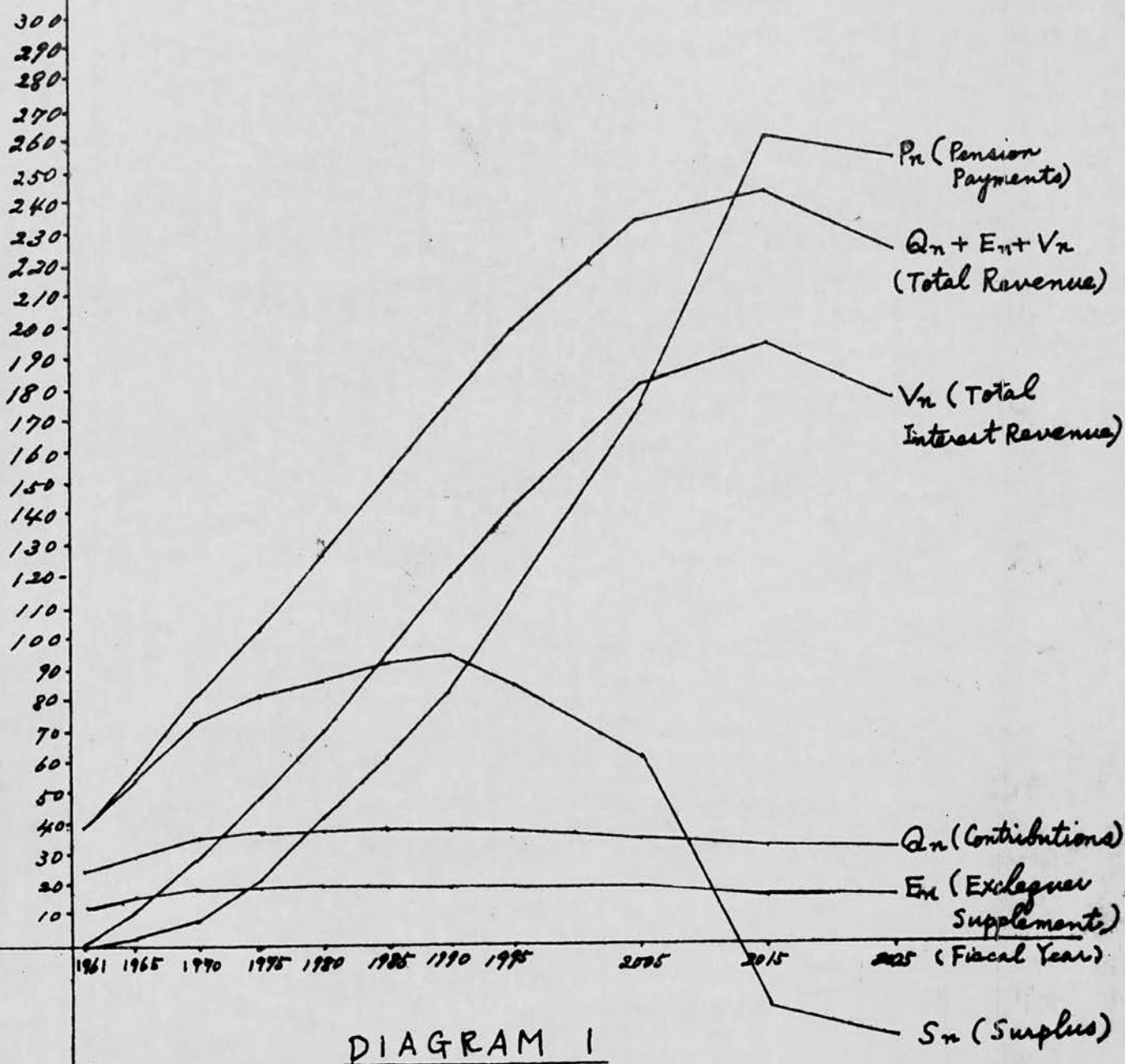


DIAGRAM 1

revenue and expenditure of the Scheme, we will go on to analyse whether or not the impact effect, A_n , of the previous formula (5) takes a positive sign in the future. According to the definition, the distribution ratio of the interest payments from the private sector to the total interest payments (d), the proportion of undistributed corporate profits to national income (b), and the marginal propensity to consume of the economy as a whole (c) have the following natures. Namely, $0 \leq d \leq 1$ and $0 < b < 1$, and $0 < c \leq 1$. So the coefficients of the right hand side of formula (5) are expressed as $(1 - bd)(1 - c) \geq 0$. While $V_n > 0$ (available from the projection), so $V_n (1 - bd)(1 - c) \geq 0$.

On the other hand, as $c' \geq c$, so $1 - c' \leq 1 - c$. From the above two relations, formula (5) is altered to

$$\begin{aligned} A_n &= \{(Q_n + E_n)(1 - c) - P_n(1 - c')\} + V_n(1 - bd)(1 - c) \\ &\geq \{(Q_n + E_n)(1 - c) - P_n(1 - c)\} \\ &= \{(Q_n + E_n) - P_n\}(1 - c) \quad (6) \end{aligned}$$

As $c \leq 1$, if $(Q_n + E_n) \geq P_n$ is satisfied, $A_n \geq 0$ is always satisfied.

Starting from the impact effect for the fiscal year 1961, (the year when the scheme starts its operation), the effects for the future years after 1965, at five or (for /

(for later years) ten year intervals, as were listed in Table I, are examined. Then according to the projection, it is observed that the condition $Q_n + E_n > P_n$ is always satisfied until 1980. This means that so long as $c < 1$ is satisfied, $A_n > 0$ is satisfied for these periods. In other words, as $c \leq c' \leq 1$, if $c < c'$, then $A_n > 0$. Even when $c = c'$, yet if $c = c' < 1$, then $A_n > 0$. On the other hand, if $c = c' = 1$, then $A_n = 0$. However, this condition of $Q_n + E_n \geq P_n$ is not satisfied in the later years after 1985. Moreover, as both the total interest payments (V_n) (which is the item with a positive sign) and pension payments (P_n) (which is the item with a negative sign) increase, whether or not the impact effect (A_n) takes a positive sign is not obtainable without imputing specific magnitudes to the coefficients. So the general conclusion is obtained that the impact effect of the pension scheme will take a positive sign when $c < c'$ or $c = c' < 1$ is satisfied, and zero when $c = c' = 1$, for the years examined until 1980; while those of the years after 1985 may take positive, zero, or negative signs, according to the magnitudes of the coefficients.¹

Next, whether or not the impact effects of later years are greater compared to that of the base year is

¹. For procedure, see Calculation Examples (1) in the end of the present section.

examined. The impact effect of the base year (the fiscal year 1961 is chosen for the present analysis) is expressed as A_n , while that of the future year to be compared is expressed as A_m .

From formula (5),

$$A_n = \{(Q_n + E_n)(1 - c) - P_n(1 - c')\} + V_n(1 - bd)(1 - c) \quad (7)$$

From definition $c \leq c' \leq 1$.

If $c' = 1$ is inserted into formula (7), (this will be expressed as A_n^1), this A_n^1 is either greater than or equal to A_n .

$$A_n \leq A_n^1 = (Q_n + E_n)(1 - c) + V_n(1 - bd)(1 - c) \quad (8)$$

In the same way from formula (5), A_m is expressed as

$$A_m = \{(Q_m + E_m)(1 - c) - P_m(1 - c')\} + V_m(1 - bd)(1 - c) \quad (9)$$

If $c' = c$ is inserted into formula (9), (this will be expressed as A_m^c), this A_m^c is either smaller than or equal to A_m .

$$A_m \geq A_m^c = \{(Q_m + E_m) - P_m\} (1 - c) + V_m(1 - bd)(1 - c) \quad (10)$$

If $A_n^1 \leq A_m^c$ is satisfied for any year of m , then from formula (8) and (10), $A_n \leq A_m$ can be proved.

If the coefficients c , c' , b and d are assumed to remain constant, from formula (8) and (10),

$$A_m^c - A_n^1 = \left[\{(Q_m + E_m) - P_m\} - (Q_n + E_n) \right] (1 - c) + \frac{(V_m - V_n)}{(1 - bd)(1 - c)} \quad (11)$$

If $(Q_m + E_m) - P_m \geq Q_n + E_n$ and $V_m \geq V_n$ are satisfied, $A_m^c \geq A_n^1$ and consequently $A_m \geq A_n$ are satisfied.

According /

According to the projection, the two conditions of $(Q_m + E_m) - P_m > Q_n + E_n$ and $V_m > V_n$ are satisfied for the fiscal years 1965 and 1970. This means that if $c < \hat{c}$ or $c = \hat{c} < 1$ is satisfied, $A_m > A_n$ is satisfied for these periods. If $c = \hat{c} = 1$, it follows that $A_m = A_n$.

For later years, however, though the second condition $V_m \geq V_n$ is always satisfied for over fifty years, the first condition $(Q_m + E_m) - P_m \geq Q_n + E_n$ is not satisfied. So again a general conclusion on the comparison between the impact effects of these later years and that of the base year is not available without imputing specific magnitudes to the coefficients. The general conclusion is obtained that the impact effects of the fiscal years 1965 and 1970 are greater than, if $c < \hat{c}$ or $c = \hat{c} < 1$, or equal to, if $c = \hat{c} = 1$, the impact effect of the base year (the fiscal year 1961); while those of future years after 1975 may be greater, equal to, or smaller than, that of the base year, according to the magnitudes² of the coefficients.

Next, the trend of the impact effects through the years is examined. The same formulae as those of the previous paragraph, of comparison of the effects between two periods, are used. However, A_n is not this time fixed

2. See Calculation Examples 2 in the end of the present section.

as that for the fiscal year 1961, but as an effect for the last examined year which immediately precedes the year being compared (m). For example, if A_m is for 1965, then A_n is for 1961, if A_m is for 1970, then A_n is for 1965, etc. (Since five year intervals are adopted as a rule in the examination, n refers usually to the fifth year preceding m).

According to the projection, both the conditions of $(Q_m + E_m) - P_m > Q_n + E_n$, and $V_m > V_n$ are satisfied until 1970 for m , and until 1965 for n . This means that if $c < \bar{c}$ or $c = \bar{c} < 1$, then $A_m > A_n$ is satisfied and that, if $c = \bar{c} = 1$, then $A_m = A_n$ follows. However, for later years, though $V_m \geq V_n$ is satisfied, as pension payments continue to increase while contributions and the Exchequer Supplement do not increase so rapidly, $(Q_m + E_m) - P_m \geq Q_n + E_n$ is not satisfied. Thus the general conclusion is derived that the impact effect will be increased from 1961 to 1965, and 1965 to 1970, if $c < \bar{c}$ or $c = \bar{c} < 1$, (but will not change if $c = \bar{c} = 1$), however, the trend of the effects of years later than this cannot be obtained without imputing specific magnitudes to the coefficients³.

The conclusions obtained in the above three analyses are shown in the following simplified table. The cases are divided according to whether the marginal propensity to consume of pensioners is greater than that of tax payers ($\bar{c} > c$) or both are equal ($\bar{c} = c$).

3. See Calculation Examples 3 in the end of the present section.

Impact Effect Through Years

Fiscal Year	1961	1965	1970	1975	1980	1985	1990	1995	2005	2015	2025
I	$c < \hat{c}$	+	+	+	+	+0-	+0-	+0-	+0-	+0-	+0-
	$c = \hat{c}$	+0	+0	+0	+0	+0-	+0-	+0-	+0-	+0-	+0-
II	$c < \hat{c}$		+	+	+0-	+0-	+0-	+0-	+0-	+0-	+0-
	$c = \hat{c}$		+0	+0	+0-	+0-	+0-	+0-	+0-	+0-	+0-
III	$c < \hat{c}$		+	+	+0-	+0-	+0-	+0-	+0-	+0-	+0-
	$c = \hat{c}$		+0	+0	+0-	+0-	+0-	+0-	+0-	+0-	+0-

Table 2.

Impact Effect Through Years

I.....Signs of the impact effects

+.....the impact effect takes a positive sign

+0.....the impact effect takes a positive sign
or zero. (Zero corresponds to $c = c' = 1$.)

+0-...the impact effect may take a positive sign,
zero, or a negative sign according to the magnitudes
of the coefficients.

II....A comparison of the impact effects of future
years to the impact effect of the base year (the fiscal
year 1961).

+.....the impact effect of the year of the column
is greater than that of the base year.

+0.....the impact effect of the year of the column
is either greater than or equal to that of the base
year. (The latter case corresponds to $c = c' = 1$.)

+0-...the impact effect of the year may be greater
than, equal to, or smaller than that of the base
year according to the magnitudes of the coefficients.

III...Trend of the impact effect through years

+.....the impact effect of the year is greater than
that of the year of the preceding column.

+0.....the impact effect of the year is either
greater than or equal to that of the year of the
preceding column. (The latter corresponds to $c = c' = 1$).

+0-...the impact effect of the year may be greater
than, /

than, equal to, or smaller than that of the year in the preceding column, according to the magnitude of the coefficients.

Calculation Examples

1975 is chosen as a sample year in the following demonstration of calculation examples.

1. Sign of the Impact Effect

From Table I, we obtain the magnitudes of the revenue and expenditure items as

$Q = 35.7$, $E = 18.0$, $V = 48.0$, and $P = 21.0$. (The unit is a thousand million yen, and the figure after the point is obtained by counting fractions of 5 and over as units and cutting away the rest. The same applies in the following analyses of 2 and 3).

Formula (6) is obtained as

$$An \geq \{(Qn + En) - Pn\} (1 - c) \quad (6)$$

From the above projection figures,

$$Qn + En = 35.7 + 18.0 = 52.7$$

$$Pn = 21.0$$

$$\text{Therefore } (Qn + En) - Pn = 52.7 - 21.0 = 31.7$$

$$> 0$$

If $c < 1$ is assumed, $1 - c > 0$. From formula (6),

$$An \geq \{(Qn + En) - Pn\} (1 - c) > 0.$$

Therefore $An > 0$ is obtained.

On /

On the other hand, as $c' \leq 1$ is assumed, if $c < \bar{c}$, then $c < 1$, and $A_n > 0$ always follows.

Even if $\bar{c} = c$, yet if $\bar{c} = c < 1$, then $A_n > 0$.

However, if $\bar{c} = c = 1$, then, from formula (5),

$$A_n = \{ (Q_n + E_n) (1 - c) - P_n (1 - \bar{c}) \} + V_n (1 - bd)(1 - c) = 0$$

The first two rows of Table 2 corresponding to 1975 are thus derived as + for $c < \bar{c}$ (i.e., the effect will be positive), and + 0 for $c = \bar{c}$ (i.e., positive or zero), while 0 corresponds to $c = \bar{c} = 1$.

2. Comparison of the Impact Effect with the Base Year

From Table 1, the revenue and expenditure of the base year, i.e., 1961, are obtained as

$$Q_n = 25.2, E_n = 12.8, V_n = 1.0, \text{ and } P_n = 0$$

Those of 1975 are the same as quoted in 1.

$$Q_m = 35.7, E_m = 18.0, V_m = 48.0 \text{ and } P_m = 21.0$$

From formula (11),

$$A_m^c - A_n^1 = \left[\{ (Q_m + E_m) - P_m \} - (Q_n + E_n) \right] (1 - c) + \{ (V_m - V_n) (1 - bd)(1 - c) \} \quad (11)$$

By the above figures,

$$\begin{aligned} \{ (Q_m + E_m) - P_m \} - (Q_n + E_n) &= \{ (35.7 + 18.0) - 21.0 \} - \\ (25.2 + 12.8) &= 32.7 - 38.0 = -5.3 < 0. \end{aligned}$$

If $c < 1$ is assumed, the left item of the right side of formula (11) is obtained as

$$\left[\{ (Q_m + E_m) - P_m \} - (Q_n + E_n) \right] (1 - c) = \frac{-5.3}{< 0} (1 - c)$$

On /

On the other hand,

$$V_m - V_n = 48.0 - 1.0 = 47.0 > 0$$

On the same assumption of $c < 1$, the right item of the right side of formula (11) is obtained as

$$(V_m - V_n) (1 - bd) (1 - c) = 47.0 (1 - bd) (1 - c) > 0$$

$$\therefore 1 - bd > 0.$$

Thus we cannot derive that $A_m^c - A_n^1 \geq 0$, without imputing specific magnitudes to the coefficients. Therefore we cannot derive any definite conclusion as to the comparison of these two.

The third and fourth rows of Table 2, corresponding to 1975, are thus derived as +0-, implying that the impact effect of 1975 may be greater than, equal to, or smaller than that of 1961.

If $c = 1$, as $c \leq \hat{c} \leq 1 \therefore \hat{c} = 1$.

From formula (5), $A_n = A_m = 0$.

If, instead, $A_m^c \geq A_n^1$ were proved, from $A_m \geq A_m^c$ (formula (10)), and $A_n \leq A_n^1$ (formula (8)), $A_m \geq A_n$ would have been proved. (A_m^c is A_m when $\hat{c} = c$, and A_n^1 is A_n when $\hat{c} = 1$, See text).

3. Comparison with the Last Examined Year

From Table 1, the revenue and expenditure of the last examined year, (i.e., 1970), is obtained as

$Q_n = 35.5$, $E_n = 18.0$, $V_n = 27.7$, and $P_n = 8.5$, while those of 1975 (Q_m , E_m , V_m , and P_m) remain the same. /

same.

In the same way as previous part 1, from formula (11),

$$\begin{aligned} \left[\{ (Q_m + E_m) - P_m \} - (Q_n + E_n) \right] (1 - c) &= \left[\{ (35.7 + 18.0) - 21.0 \} \right. \\ &- \left. (35.5 + 18.0) \right] (1 - c) = (32.7 - 53.5) (1 - c) \\ &= -20.8 (1 - c) \\ &\leq 0. \end{aligned}$$

On the other hand,

$$\begin{aligned} (V_m - V_n) (1 - b_d) (1 - c) &= (48.0 - 27.7) (1 - c) \\ &= 20.3 (1 - c) \\ &\geq 0. \end{aligned}$$

Thus whether or not $A_m^0 \geq A_n^1$ is not obtainable without imputing specific magnitudes to the coefficients.

The last two rows of Table 2, corresponding to 1975 are thus derived as +0-, implying that the impact effect of 1975 may be greater than, equal to, or smaller than that of 1961.

Section 3. Composition of the Impact Effect

The impact effect readjusted according to the economic functions is obtained as the multiplicand of the formula (19) of the Section 3 of Chapter III. This is

$$A_n = \{ (\bar{c}P_n - cT_n) - c(1-b)R_n \} + \{ (T_n + R_n - P_n) - bR_n \} \quad (1)$$

while $(\bar{c}P_n - cT_n)$ are the changes in consumption via pension payments and social security tax, $-c(1-b)R_n$ is the decrease /

decrease in consumption via the interest payments from the private sector; and these two compose the changes in consumption. The $(T_n + R_n - P_n)$ are the increase in investment via the surplus formation of the pension scheme, $-bR_n$ is the decrease in private investment via interest payments of business firms to the pension scheme; and these two compose the changes in investment. For the same reason as before, formula (1) must be altered to be expressed by factors, Q_n , E_n , V_n , and P_n which are available from the projection.

From formula (2), (3), and (4) of the previous section, i.e.,

$T_n = Q_n + E_n + R_n$, $U_n + R_n = V_n$, and $R_n = dV_n$, formula (1) is altered to

$$\begin{aligned} A_n &= \bar{c}P_n - c(T_n + R_n - bR_n) + T_n + R_n - bR_n - P_n \\ &= \bar{c}P_n - c\{Q_n + E_n + U_n + R_n - bR_n\} + (Q_n + E_n + U_n) + R_n - bR_n - P_n \\ &= \bar{c}P_n - c\{(Q_n + E_n) + V_n - bdV_n\} + (Q_n + E_n) + V_n - bdV_n - P_n \\ &= \left[\bar{c}P_n - c\{(Q_n + E_n) + V_n(1 - bd)\} \right] + \left[\{(Q_n + E_n) - P_n\} + V_n(1 - bd) \right] \end{aligned} \quad \dots\dots\dots(2)$$

If the impact changes in investment are expressed as I_n , then from formula (2),

$$I_n = \{(Q_n + E_n) - P_n\} + V_n(1 - bd) \quad (3)$$

$$\text{As } 0 < b < 1, \text{ and } 0 \leq d \leq 1, \text{ } 0 \leq bd < 1. \quad \therefore 1 \geq 1 - bd > 0.$$

As $V_n > 0$,

$$V_n \geq V_n(1 - bd) > 0. \quad (4).$$

From /

From the right part of formula (4), i.e., $V_n(1 - bd) > 0$, and also from formula (3),

$$\begin{aligned} I_n &= \{ (Q_n + E_n) - P_n \} + V_n (1 - bd) \\ &> \{ (Q_n + E_n) - P_n \} \end{aligned} \quad (5)$$

If $Q_n + E_n \geq P_n$ is satisfied, $I_n > 0$ is always satisfied. In the same way as in the previous analysis, starting in 1961, and after 1965 five or (for later years) ten year intervals, as are shown in Table I, are examined.

According to the projection, the above condition $Q_n + E_n \geq P_n$ is always satisfied until 1980. So at least until 1980, the impact changes in investment will take positive signs. However, in the years following 1985, the relation is altered to $Q_n + E_n < P_n$, implying that the first half of formula (3) takes a negative sign. On the other hand, V_n continue to increase, implying that the latter half of formula (3) takes a positive sign. A general conclusion as to whether or not I_n takes a positive sign cannot be obtained for most of these later years.

However, in the extreme future years, the negative effect of P_n becomes decisive and makes I_n of formula (3) negative regardless of the magnitudes of the coefficients. This is proved as follows. From the left part of formula (4), i.e. $V_n \geq V_n (1 - bd)$, and also from formula (3),

$$\begin{aligned} I_n &= \{ (Q_n + E_n) - P_n \} + V_n (1 - bd) \\ &\leq \{ (Q_n + E_n) - P_n \} + V_n \\ &= / \end{aligned}$$

$$= \{(Q_n + E_n + V_n)\} - P_n \quad (6)$$

The left part of the formula (6) is the total revenue, and the right is the expenditure; consequently, the difference between these is the surplus formation. As has been explained before, according to the projection the surplus formation takes a negative sign in 2015 and 2025. On the other hand, if $(Q_n + E_n + V_n) < P_n$ is satisfied, $I_n < 0$ is satisfied. So the general conclusion is derived that the impact changes in investment will take a negative sign in 2015 and 2025.

Next, whether or not the impact changes in investment of later years are greater than those of the base year is examined. In a similar way as in the analysis of the previous section, I_m is used for the former (i.e. later years), and I_n for the latter (base year).

From the condition $1 \geq 1 - b_d$ and formula (3), the same formula as formula (6) is written for I_n

$$I_n \leq (Q_n + E_n + V_n) - P_n \quad (7)$$

From the condition $1 - b_d > 0$ and formula (3), the same formula as formula (5) is written for I_m

$$I_m > (Q_m + E_m) - P_m \quad (8)$$

If $(Q_m + E_m) - P_m \geq (Q_n + E_n + V_n) - P_n$ is satisfied for any year, m , then $I_m > I_n$ is satisfied. According to the actuarial projection, this condition is satisfied for /

for m of 1965 and 1970. So the impact changes in investment in 1965 and in 1970 are greater than those in 1961. For the more distant years, the examination must be carried out in the opposite way. In for the base year are expressed in the same way as in formula (8).

$$I_n > (Q_n + E_n) - P_n \quad (9)$$

I_m for later years are expressed as in formula (7).

$$I_m \leq (Q_m + E_m + V_m) - P_m \quad (10).$$

According to the projection,

$(Q_m + E_m + V_m) - P_m < (Q_n + E_n) - P_n$, and consequently $I_m < I_n$, are satisfied for 2015 and 2025. Thus the impact changes in investment in 2015 and 2025 are less than those in the base year. (As $I_n > 0$, while $I_m < 0$ for these years, it naturally follows $I_m < I_n$. The meaning of this result is therefore more a negative one in that the general relation $I_m < I_n$ cannot be found for any other years).

Next, if, in the same way as in the previous analysis, the trend of the changes in investment is analysed, the general conclusion is derived that the impact changes in investment in 1965 are greater than those in 1961, but in later years the trend may be positive, zero, or negative, according to the magnitudes of the coefficients. (As the method of analysis is the same, the procedures are omitted).

If the changes in consumption are expressed as C_n , then from /

from formula (2),

$$C_n = \bar{c}P_n - c \left\{ (Q_n + E_n) + V_n (1 - bd) \right\} \quad (11)$$

First of all, whether or not C_n take a positive sign is examined.

$$\begin{aligned} &\text{As } \bar{c} \geq c, 1 \geq 1 - bd, \text{ and } V_n > 0, \\ &C_n \geq \bar{c}P_n - \bar{c} \left\{ (Q_n + E_n) + V_n (1 - bd) \right\} \\ &\geq \bar{c}P_n - \bar{c} (Q_n + E_n + V_n) \\ &= \bar{c} \left\{ P_n - (Q_n + E_n + V_n) \right\} \quad (12) \end{aligned}$$

If $P_n > Q_n + E_n + V_n$ is satisfied, it follows that $C_n > 0$. According to the projection, this condition is satisfied for the years 2015 and 2025.

Next, whether or not the impact changes in consumption of later years (C_m) are greater than those of the base year (C_n) is examined.

From formula (11),

$$C_m = \bar{c}P_m - c \left\{ (Q_m + E_m) + V_m (1 - bd) \right\} \quad (13)$$

As $1 - bd \leq 1$,

$$C_m \geq \bar{c}P_m - c (Q_m + E_m + V_m) \quad (14).$$

From formula (11),

$$C_n = \bar{c}P_n - c \left\{ (Q_n + E_n) + V_n (1 - bd) \right\} \quad (15)$$

As $1 - bd > 0$,

$$C_n < \bar{c}P_n - c (Q_n + E_n) \quad (16).$$

$$\begin{aligned} C_m - C_n &> \left\{ \bar{c}P_m - c (Q_m + E_m + V_m) \right\} - \left\{ \bar{c}P_n - c (Q_n + E_n) \right\} \\ &= \bar{c} (P_m - P_n) - c \left\{ (Q_m + E_m + V_m) - (Q_n + E_n) \right\} \quad (17) \end{aligned}$$

As /

As $Q_m + E_m + V_m > Q_n + E_n$ (See Table I), and by definition $\bar{c} \geq c$, formula (17) can be altered as

$$\begin{aligned} C_m - C_n &> \bar{c} (P_m - P_n) - c \{ (Q_m + E_m + V_m) - (Q_n + E_n) \} \\ &\geq \bar{c} (P_m - P_n) - \bar{c} \{ (Q_m + E_m + V_m) - (Q_n + E_n) \} \\ &= \bar{c} \left[(P_m - P_n) - \{ (Q_m + E_m + V_m) - (Q_n + E_n) \} \right] \quad (18). \end{aligned}$$

As $P_n = 0$, for $n = 1961$ (See Table I),

Formula (18) can be altered as

$$C_m - C_n > \bar{c} \left[P_m - \{ (Q_m + E_m + V_m) - (Q_n + E_n) \} \right] \quad (19).$$

If the condition of $P_m - \{ (Q_m + E_m + V_m) - (Q_n + E_n) \} \geq 0$ is satisfied, $C_m > C_n$ is always satisfied. The above condition is satisfied only for the years 2015 and 2025 (See Table I). Therefore, the impact changes in consumption in 2015 and 2025 are greater than those in the base year.

We can try to analyse whether or not the impact changes in consumption of the base year (C_n) are greater than those of later years (C_m).

In the same way as formula (14), C_n are obtained as,

$$C_n \geq \bar{c} P_n - c (Q_n + E_n + V_n) \quad (20)$$

C_m are expressed in the same way as formula (16),

$$C_m < \bar{c} P_m - c (Q_m + E_m) \quad (21)$$

$$\begin{aligned} C_n - C_m &> \bar{c} (P_n - P_m) - c \{ (Q_n + E_n + V_n) - (Q_m + E_m) \} \\ &= c \{ (Q_m + E_m) - (Q_n + E_n + V_n) \} - \bar{c} (P_m - P_n) \quad (22) \end{aligned}$$

As $P_n = 0$ for $n = 1961$, formula (22) is obtained as

$$C_n /$$

$$C_n - C_m > c \left\{ (Q_m + E_m) - (Q_n + E_n + V_n) \right\} - \bar{c} P_m \quad (23)$$

If $c \left\{ (Q_m + E_m) - (Q_n + E_n + V_n) \right\} - \bar{c} P_m \geq 0$ is satisfied for any m , $C_n > C_m$ can be proved. However, though we can derive, from Table I, $(Q_m + E_m) - (Q_n + E_n + V_n) > 0$, but as $P_m > 0$, $-\bar{c} P_m < 0$. Since by definition $\bar{c} \geq c$, we cannot get any general solution of m for the case $C_n > C_m$ in formula (23), unless we impute the magnitudes of the coefficients.

If we consider C_n of formula (19) as the changes in consumption of the last examined year immediately preceding the year being compared (m), we can demonstrate by similar reasoning, that the changes in consumption will show an increasing trend from the years 2005 to 2015, and from 2015 to 2025. For other years we cannot derive any general conclusion.

The conclusions obtained in the above analyses on the impact changes in investment and in consumption are shown in the following simplified table.

Impact Changes in Investment and in Consumption

Fiscal year	1961	1965	1970	1975	1980	1985	1990	1995	2005	2015	2025
I (1)	+	+	+	+	+	+0-	+0-	+0-	+0-	-	-
I (2)		+	+	+0-	+0-	+0-	+0-	+0-	+0-	-	-
I (3)		+	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0-
II (1)	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+	+
II (2)	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+	+
II (3)		+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+	+

TABLE 3.

I....The impact changes in investment

II....The impact changes in consumption.

(1) /

(1) Signs.

+.....the impact effect takes a positive sign
 -.....the impact effect takes a negative sign
 +0-...the impact effect may take a positive, zero,
 or negative sign according to the magnitudes of the
 coefficients.

(2) A comparison of the impact changes in investment
 of future years to those of the base year.

+.....the impact effect of the year of the column
 is greater than that of the base year.
 -.....the impact effect of the year of the column is
 smaller than that of the base year.
 +0-...the former may be greater than, equal to, or
 smaller than the latter according to the magnitudes
 of the coefficients.

(3) Trend.

+.....the impact effect of the year is greater than
 that of the year of the preceding column.
 +0-...the former may be greater than, equal to, or
 smaller than that of the latter according to the
 magnitudes of the coefficients.

Section 4. A Unit Effect

We have analysed in the preceding sections the signs
 and the trends of the impact effect and its composition.
 The /

The total of the impact effect may naturally increase according to the increase in the size of the budget. However, a unit effect may not increase. Hence, the latter depends on the structure of the revenue and expenditure. Therefore, we will analyse in this section a unit effect of the Scheme. A unit effect is defined as the impact effect corresponding to a unit of the size of the budget of the pension scheme.

The impact effect (A_n) is obtained from formula (2) of Section 3 and is altered to

$$\begin{aligned} A_n &= (Q_n + E_n)(1 - c) - P_n(1 - \hat{c}) + V_n(1 - bd)(1 - c) \\ &= (Q_n + E_n + V_n)(1 - c) - P_n(1 - \hat{c}) - V_n \cdot bd(1 - c) \end{aligned} \quad (1)$$

The size of the budget (D_n) is obtained as the total revenue of the pension scheme.

$$D_n = Q_n + E_n + V_n \quad (2)$$

A unit effect (B_n) is obtained from formula (1) and (2)

$$B_n = \frac{A_n}{D_n} = (1 - c) - \left\{ \frac{P_n}{Q_n + E_n + V_n} \right\} (1 - \hat{c}) - \left\{ \frac{V_n}{Q_n + E_n + V_n} \right\} bd(1 - c) \quad (3)$$

As the size of the budget (D_n) is always positive, a unit effect (B_n) takes the same sign as the total impact effect (A_n). (See column I of Table 2). A comparison of unit effects of later years to that of the base year, and the trend of a unit effect through years, will be examined. From formula (3), it is the ratios of pension payments and the total interest revenue to the total revenue, /

revenue, i.e. $\frac{P_n}{Q_n + E_n + V_n}$ and $\frac{V_n}{Q_n + E_n + V_n}$, that decide the magnitudes of a unit effect, assuming that the coefficients remain constant. First of all, according to the projection, both of these ratios of years after 1965 (chosen at five or, for later years, ten year intervals (See Table I)), take greater magnitudes than those of the ratios of the base year. As $1 \geq c' \geq c$, $0 < b < 1$, and $0 \leq d \leq 1$, so it follows that $1 - c' \geq 0$ and $bd(1 - c) \geq 0$. This means from formula (3) that the greater these ratios, the smaller will be a unit effect. So the general conclusion is derived that a unit effect, of the years examined after 1965, takes a smaller magnitude than that of the year 1961, as long as $c' > c$ or $c = c' < 1$. If, instead, $c' = c = 1$, then from formula (3) a unit effect is always zero, and consequently, no change occurs in the magnitude of the base year compared with those of later years. Secondly, the above two ratios are increasing for over fifty years, until 2015. This implies that a unit effect is decreasing during all periods until 2015, as long as $c' > c$ or $c = c' < 1$. If $c' = c = 1$, no change occurs. However, from 2015 to 2025, though the ratio of pension payments to the total revenue $\left(\frac{P_n}{Q_n + E_n + V_n}\right)$ continues to increase, the ratio of the total interest revenue to total revenue $\left(\frac{V_n}{Q_n + E_n + V_n}\right)$ slightly decreases.

So /

So a general conclusion on the trend cannot be obtained without imputing specific magnitudes to the coefficients. The conclusions obtained in the above two analyses are shown in the following table. The cases are divided according to whether the marginal propensity to consume of pensioners is greater than that of tax payers, ($\acute{c} > c$), or both are equal, ($\acute{c} = c$).

A Unit Effect Through Years

Fiscal year	1961	1965	1970	1975	1980	1985	1990	1995	2005	2015	2025
I $\acute{c} > c$ $\acute{c} = c$		- -0	- -0	- -0	- -0	- -0	- -0	- -0	- -0	- -0	+0- +0-
II $\acute{c} > c$ $\acute{c} = c$		- -0	- -0	- -0	- -0	- -0	- -0	- -0	- -0	+0- +0-	+0- +0-

Table 4.

I....A comparison of unit effects of future years to a unit effect of the base year (the fiscal year 1961).

-.....a unit effect of the year of the column is smaller than that of the base year.

-o.....a unit effect of the year of the column is either smaller than or equal to that of the base year. (The latter case corresponds to $\acute{c} = c = 1$).

II...Trend of a unit effect through years.

-.....a unit effect of the year is smaller than that of the year of the preceding column.

-o.....a unit effect of the year is either smaller than, /

than, or equal to that of the year of the preceding column. (The latter corresponds to $c' = c = 1$).

+0-...a unit effect of the year may be greater than, equal to, or smaller than that of the year in the preceding column, according to the magnitudes of the coefficients.

Section 5. Tentative Conclusions

Now that we have analysed the impact effect of the National Pension Scheme, we will summarize the tentative conclusions which we may be able to derive from these analyses.

Firstly we have to mention here that we are not going to deal with the actual magnitude of the changes in income which are likely to be generated in a particular year in the future. We are strongly aware of the difficulty involved in magnitudal analysis, at the present stage of information on the nature of the forces which determine economic activities. We are aware that there exist so many difficult problems which we have to solve before we could say anything reliable about the future in magnitudal terms. It is in any case extremely dangerous to /

to say anything on the possible effect of the pension scheme in such a way. Actual transactions of the public sector with the private sector via the pension scheme will take place in an uneven way, showing very variable waves of receipts and expenditures. The multiplier process involves a complex problem of time lags. Not only are we not informed of the length of the time lags, but we are not even sure whether the time lags of pensioners are the same as those of contributors; whether the way of the utilization of reserves of the scheme may affect the way they are decided; etc. The multiplier process in the actual economy may not take place in such a way as is assumed in a simple Keynesian model. Not only are we not informed of the general trend of the future economic activities, but also we are not sure of the future values of the coefficients of our model.

In order not to be involved with these difficulties, we have intentionally evaded going into magnitudal calculations, and have restricted ourselves strictly to the examination of the impact effect, without committing ourselves to the specific magnitudes of the coefficients. /

coefficients. By so doing, we might be able to reduce the difficulties relating to the treatment of future changes. Notwithstanding, we are still aware that even our simplified analysis, and the conclusions which might be derived, are under great limitations. We are not even sure whether or not the assumptions on which we have based our analyses will actually be realized in the future. The Exchequer Supplement was assumed to be financed out of the increase in general taxation, yet we are not sure that the government is still going to maintain a balanced budget policy in the future. The government may adopt taxation policies which may hit specific sectors of the population, or may affect the distribution mechanisms via pricing policies. These, in turn, may affect the pattern of distribution of taxation, and thus the interest payments from firms to the pension scheme. The proportion of the undistributed profits to national income may undergo a significant change. It is extremely difficult to say whether or not the assumptions will be realized. However, among many possibilities, it might be possible to say that the assumptions concerning the method of financing the Exchequer Supplement, /

Supplement, and those concerning the interest payments from the public sector, are not so unrealistic. There is, therefore, a chance that they will prove to be realised. We may be able, also, to add that the political, administrative, and psychological factors may be maintained, in the future, such that the assumption of our financings by taxation, (rather than red financings, etc.) may be realized. It is, however, extremely difficult to tell anything exactly; yet so far as the very near future is concerned, the government is more likely to maintain the present line of strict restriction on red financing policies. As to the distribution of the interest burdens of the private firms, the shift might take place differently from what we have assumed. As we have rather carefully analysed in Chapter III, Section 2, the shift to wages, the shift to undistributed profits, the shift to shares, etc., may take place at different times at different stages of the economic development, and with different emphasis. Nevertheless, our assumption of a proportional shift to personal income may not be so unrealistic.

It goes without saying that the analysis is greatly limited in the sense that foreign trade is neglected, and induced investment is not considered; while the changes /

changes in expenditure, and not in income in real terms, are considered, etc.

With these limitations in mind, we have derived some tentative conclusions. The analysis in Section 2 explains that the impact effect will be positive, and will be increasing, in the future. It is extremely difficult to say whether or not the effect will be positive at least for twenty years to come and will be increasing at least for ten years to come, as Table 2 shows. Nevertheless it might be more likely that the national expenditure will be increased, at least for the first decade or two, and possibly for longer. We simply do not know how much the actual change in income will correspond to the probable national income level.¹ However, since the magnitude of the scheme is growing very rapidly, it may be more likely than not that the significance of the pension scheme in the national economy will be increased in the future.

The analysis of the composition of the effect in Section 3 explains that the investment will be increased in the future 20 years or so. This also is difficult to predict unless we know what is the reaction of the private sector to the increase in public investment. Nevertheless, in view of a strong demand for loanable funds /

¹. For the weight of the pension investment in the Fiscal Investment and Loan Programme, see Chapter V, Section 3. See also Chapter II, Section 5.

funds in the past, it may be more likely that the increase in fiscal funds via pension surplus is going to work towards an increased investment in the near future. In spite of all these, as Section 4 shows, a unit effect may be decreased. This is because the Japanese National Pension Scheme is likely to act in a more complicated way than as a mere transfer mechanism of income, i.e., in a close relationship with the private industrial sectors. The composition of the budget of the pension scheme is undergoing a change.

Though we cannot say for certain how great a magnitude the total effect will have, or in what precise way the impact effect will move, we might be able to say that the introduction of the Scheme is more likely to affect the level of national expenditure, and possibly increase the investment of the economy. If the investment of the economy as a whole is increased, consequential increase in capacity might cause a higher rate of growth in real terms.

Thus we will go on to the analysis of supply, the effect of pension investment on output growth, and, finally, investment policies of the pension schemes.

CHAPTER V. THE NATIONAL PENSION SCHEME AND ECONOMIC GROWTH

Section 1. Introduction

The object of this chapter is to analyse the effect of the changes in investment due to the National Pension Scheme on the economic growth of Japan.

Section 2 gives a short analysis of economic growth in Japan and factors which governed this growth with the aid of statistics.

Section 3 illustrates how the scheme raises the level of investment and thus affects the rate of economic growth with the aid of a simple Harrod-Domar type model.

Section 4 analyses the investment policies of the pension scheme. The emphasis is attached to the intricate inter-relation between the pension investment and the total Fiscal Investment and Loan Programme.

Section 2. Economic Growth of Japan

The object of this chapter is to analyse the effect of the changes in investment due to the National Pension Scheme on the economic growth of Japan. This involves us in a short analysis of economic growth in Japan and factors which governed it.

First of all, the rate of economic growth (measured by gross national product) in real terms has been very high. In several years the annual increase exceeded 10%. (See Table 1.). However, the pattern of the industrial development of different sectors shows a sharp decrease in the proportion of the primary industries.

Trend of Post War Gross National Product.

Year	Current Prices (1,000 million yen)	Constant Prices (1946 prices) (1,000 million yen)	Index (1946=100)	Rate of Increase % of Previous Years.
1946	474.0	474.0	100.0	-
1947	1,308.7	521.6	110.0	10.0
1948	2,666.1	607.3	128.1	16.4
1949	3,375.2	630.7	133.1	3.9
1950	3,946.7	707.9	149.3	12.2
1951	5,444.2	803.4	169.5	13.5
1952	6,118.0	887.5	187.2	10.5
1953	7,084.8	947.4	199.9	6.7
1954	7,435.2	984.3	207.7	3.9
1955	8,203.3	1,082.2	228.7	10.1
1956	9,249.8	1,172.9	247.4	8.2
1957	10,025.1	1,255.6	264.9	7.1
1958	10,291.7	1,301.9	274.7	3.7

TABLE 1.

1. Column 3 has been recalculated using 1946 prices instead of 1934-36 prices.

Source: Long Term Forecast of Japanese Economy, Committee for Long Term Economic Forecast, Economic Advisory Council, Economic Planning Agency, August, 1960. p. 51, Table 1.

Comparison of Pre-and Post-War Rates of Growth of
Gross National Product at Constant Prices.

Classification	period	Rate of Growth (%)
Pre-War	1925 - 1939	4.6
Pre-War	1931 - 1939	6.9
Post-War	1946 - 1952	11.0
Post-War	1952 - 1958	6.6
Post-War	1946 - 1958	8.8

TABLE 2 .

Source: As for Table 1.

Its share was reduced to less than half with the recent fourteen years, i.e. from 38.8% in 1946 to 16.6% in 1959. By contrast secondary and tertiary industries, particularly the latter, have shown a great increase. (See Table 3). As far as the utilization of resources are concerned, a gradual decrease in the proportion of consumption, in contrast to the increase in investment, is observable. (See Table 4). Although the price has increased rapidly immediately after the War, it has not shown a particularly significant rise since 1952. (See Table 5). Population growth has been high, exceeding 1% per annum between 1951 to 1956. The rate of increase in the labour force was very great, much exceeding the rate of growth in total population (see Table 6). Nevertheless, because of a high rate of growth, per capita national income in real terms has increased at a very high rate. (See Table 9). On the other hand, though the population growth was great in the past, it is sharply decreasing. Moreover, the Table of Mortality and Birth Rates indicates that the birth rate is decreasing very rapidly, and together with the decrease in the mortality rate, the population composition is undergoing a significant change. (See Table 7). The industrial distribution of the working population is also changed; we see that the proportion in primary industry is decreasing rapidly, while there is a very rapid growth rate in tertiary industry (Table 8). Table 10 shows that increase in the number of population between the ages of 15 and 59 will continue. This implies that the growth in output is not likely to be restricted by an insufficient supply of labour, although there may be frictional problems associated with the immobility of the labour. However, the annual increase is estimated to become less than 1 million in 1966 and will con-

National Income by Industry.

Year	Primary Industry	Secondary Industry	Tertiary Industry	Total (Domestic Income)	Net Receipts from Abroad	National Income
1946	140.1 ¹ (38.8) ²	95.1 (26.3)	125.7 (34.9)	360.9 (100.0)	- -	360.9 (100.0)
1947	343.4 (35.5)	276.8 (28.6)	348.3 (36.0)	968.5 (100.1)	Δ0.5 (Δ0.1)	968.0 (100.0)
1948	624.8 (31.8)	604.3 (30.8)	733.1 (37.4)	1,962.2 (100.0)	Δ0.6 (0)	1,961.6 (100.0)
1949	751.2 (27.4)	879.6 (32.1)	1,107.0 (40.5)	2,737.8 (100.0)	Δ0.5 (0)	2,737.3 (100.0)
1950	879.4 (26.1)	1,074.8 (31.8)	1,429.5 (42.3)	3,383.7 (100.1)	Δ2.2 (Δ0.1)	3,381.5 (100.0)
1951	1,128.4 (25.0)	1,464.7 (32.4)	1,934.6 (42.7)	4,527.7 (100.1)	Δ2.5 (Δ0.1)	4,525.7 (100.0)
1952	1,217.7 (23.9)	1,618.9 (31.8)	2,259.3 (44.5)	5,095.9 (100.2)	Δ11.0 (Δ0.2)	5,084.9 (100.0)
1953	1,266.6 (22.0)	1,839.5 (32.0)	2,652.6 (46.2)	5,758.7 (100.2)	Δ11.1 (Δ0.2)	5,747.7 (100.0)
1954	1,324.2 (22.0)	1,872.5 (31.1)	2,854.2 (47.4)	6,050.9 (100.5)	Δ28.5 (Δ0.5)	6,022.4 (100.0)
1955	1,519.6 (22.6)	2,060.8 (30.7)	3,158.9 (47.1)	6,739.3 (100.4)	Δ25.3 (Δ0.4)	6,714.0 (100.0)
1956	1,454.9 (19.2)	2,517.1 (33.2)	3,634.8 (48.0)	7,606.8 (100.4)	Δ32.3 (Δ0.4)	7,574.5 (100.0)
1957	1,532.0 (18.6)	2,766.3 (33.6)	3,960.0 (48.2)	8,258.3 (100.4)	Δ38.7 (Δ0.4)	8,219.6 (100.0)
1958	1,561.2 (18.4)	2,773.9 (32.6)	4,204.5 (49.4)	8,539.6 (100.4)	Δ35.1 (Δ0.4)	8,504.5 (100.0)
1959	1,656.7 (16.6)	3,452.4 (34.5)	4,921.0 (49.3)	10,030.1 (100.4)	Δ38.9 (Δ0.4)	9,991.2 (100.0)

(SOURCE: National Income White Paper, 1959 pp. 160-164)

TABLE 3.

1. For each year in the table the first row of statistics represents income in absolute terms.
2. For each year in the table the second row of statistics in parenthesis represents income in absolute terms as a percentage of total national income.
3. Primary Industry represents agriculture, forestry and fisheries; Secondary Industry represents mining, construction and manufacturing; and Tertiary Industry represents whole sale, retail trade, finance, real estate trade, transportation, communication, other public utilities, services, public work, and others.

Total Supply

(1,000 million yen)

Year	Item	Total Supply (1) = (2) + (3) + (4) + (5)	Personal Income (2)	Undistributed Corporate Profits etc. (3)	Contents				Less: Interest on Government Debt	Imports of Goods and Services (4)	Reconciliation Item (5)	Contents				Statistical Errors and Omissions
	Undistributed Corporate Profits				Corporate Tax	Surplus of Govern- ment Enterprises, etc.	Less items	Transfer Pay- ments (excluding Contributions for Social Insurance)				Plus Items	Capital Consump- tion Allowances	Indirect Business Tax (excluding Subsidy)		
1946		498.1	364.0	0.9	-1.0	4.1	- 2.2	-	24.1	109.1	4.0	4.0	113.1	24.4	-2.1	90.8
1947		1,390.2	978.4	-6.9	-4.4	12.9	-15.4	-	81.5	337.2	3.5	3.5	340.7	56.6	92.3	191.8
1948		2,856.7	1,956.7	1.0	2.3	40.0	-41.3	-	190.6	708.4	-3.9	-3.9	704.5	107.7	242.9	353.9
1949		3,702.0	2,546.1	195.5	37.6	94.0	63.9	-	326.8	633.6	4.3	4.3	637.9	157.8	278.8	201.3
1950		4,311.0	3,070.8	324.2	192.2	108.9	23.3	-	364.3	551.7	13.5	13.5	565.2	207.0	339.6	18.6
1951		6,143.4	4,045.4	495.7	214.9	229.9	50.9	-	699.2	903.1	15.9	15.9	919.0	280.0	482.5	156.5
1952		6,868.6	4,722.9	419.1	196.4	223.1	35.9	36.3	750.6	976.0	57.1	57.1	1,033.1	359.4	575.9	97.8
1953		8,013.7	5,272.4	546.7	297.2	231.5	62.4	44.4	928.9	1,265.7	71.4	71.4	1,337.1	473.3	668.3	195.5
1954		8,296.3	5,696.7	484.9	232.9	241.5	61.5	51.0	830.6	1,284.1	159.2	159.2	1,443.3	558.8	733.7	150.8
1955		9,187.9	6,352.4	513.6	273.8	234.1	61.6	55.9	951.2	1,370.7	152.0	152.0	1,522.7	650.7	764.5	107.5
1956		10,679.9	6,885.3	819.9	510.0	303.5	64.1	58.6	1,373.0	1,601.7	130.7	130.7	1,732.4	708.8	873.4	70.2
1957		11,536.7	7,441.4	903.8	409.8	426.9	132.7	63.6	1,439.8	1,751.9	125.6	125.6	1,879.5	912.2	964.9	-29.6
1958		11,539.5	7,881.0	767.5	319.9	375.7	137.2	65.3	1,159.8	1,731.2	144.0	144.0	1,875.2	1,050.5	1,048.9	-24.2
1959		14,024.3	8,915.1	1,252.7	685.2	489.6	144.0	66.1	1,501.9	2,354.6	176.6	176.6	2,531.2	1,263.0	1,183.0	85.2

TABLE 4 (1)

SOURCE: National Income White Paper, 1959. Reference Table 1.

Total Demand

(1,000 million yen)

Year	Item Total Demand (6) = (7) + (8)	Total Sales (7)	Contents							Change in Business Inventories (8)	Contents	
			Consumption	Contents		Investment	Contents		Exports of Goods and Services		Private	Government
				Personal Consumption Expenditures	Government Current Expenditures		Producers' Durable Equipment, (including Personal Residential Construction	Government (Equipment)				
1946	498.1	466.5	387.9	333.1	54.8	73.8	47.7	26.1	4.8	31.6	27.9	3.7
1947	1,390.2	1,264.4	1,017.3	915.1	102.2	219.4	116.6	102.8	27.7	125.8	82.5	43.3
1948	2,856.7	2,547.6	2,023.4	1,741.1	282.3	443.1	258.4	184.7	81.1	309.1	235.8	73.3
1949	3,702.0	3,428.1	2,654.9	2,261.1	393.8	556.7	324.2	232.5	216.5	273.9	207.8	66.1
1950	4,311.0	3,997.4	2,834.6	2,397.3	437.3	693.7	449.7	244.0	469.1	313.6	368.4	-54.8
1951	6,143.4	5,514.1	3,571.0	3,018.2	552.8	1,034.5	681.4	353.1	908.6	629.3	570.7	58.6
1952	6,868.6	6,437.0	4,360.5	3,679.0	681.5	1,246.4	808.6	437.8	830.1	431.6	595.4	36.2
1953	8,013.7	7,595.8	5,119.3	4,351.5	767.8	1,560.1	927.5	632.6	916.4	417.9	407.7	10.2
1954	8,296.3	8,044.9	5,586.0	4,740.2	845.8	1,498.1	892.9	605.2	960.8	251.4	264.0	-12.6
1955	9,187.9	8,607.3	5,984.4	5,118.5	865.9	1,530.4	919.9	610.5	1,092.5	580.6	452.9	127.7
1956	10,679.9	9,957.4	6,454.6	5,509.9	944.7	2,230.5	1,548.9	681.6	1,272.3	722.5	694.3	28.2
1957	11,536.7	11,069.0	6,956.5	5,969.0	986.9	2,727.0	1,891.7	835.3	1,385.5	467.7	473.4	-5.7
1958	11,539.5	11,507.0	7,379.6	6,298.2	1,081.4	2,772.9	1,864.9	908.0	1,354.5	32.5	17.8	14.7
1959	14,024.3	13,134.8	8,013.3	6,836.7	1,176.6	3,509.6	2,443.0	1,066.6	1,611.9	889.5	851.1	38.4

TABLE 4(2)

Source: As for Table 4(1).

Total Supply and Total Demand (Composition)

Item Year	Total Supply	Personal Income	Undistributed Corporate Profits, etc.	Imports of Goods and Services	Reconciliation Items	Contents		Total Demand	Total Sales	Contents			
						Less Items	Plus Items			Consumption	Investment	Exports of Goods and Services	Change in Business Inven-
1946	100.0	73.1	0.2	4.8	21.9	0.8	22.7	100.0	93.7	77.9	14.8	1.0	6.3
1947	100.0	70.4	Δ 0.5	5.9	24.2	0.3	24.5	100.0	91.0	73.2	15.8	2.0	9.0
1948	100.0	68.5	-	6.7	24.8	Δ 0.1	24.7	100.0	89.1	70.8	15.5	2.8	10.9
1949	100.0	68.8	5.3	8.8	17.1	0.1	17.2	100.0	92.6	71.7	15.0	5.9	7.4
1950	100.0	71.2	7.5	8.5	12.8	0.3	13.1	100.0	92.7	65.7	16.1	10.9	7.3
1951	100.0	65.8	8.1	11.4	14.7	0.3	15.0	100.0	89.8	58.1	16.9	14.8	10.2
1952	100.0	68.8	6.1	10.9	14.2	0.8	15.0	100.0	93.7	63.5	18.1	12.1	6.3
1953	100.0	65.8	6.8	11.6	15.8	0.9	16.7	100.0	94.8	63.9	19.5	11.4	5.2
1954	100.0	68.7	5.8	10.0	15.5	1.9	17.4	100.0	97.0	67.3	18.1	11.6	3.0
1955	100.0	69.1	5.6	10.4	14.9	1.7	16.6	100.0	93.7	65.1	16.7	11.9	6.3
1956	100.0	64.5	7.7	12.9	14.9	1.2	16.1	100.0	93.2	60.4	20.9	11.9	6.8
1957	100.0	64.5	7.8	12.5	15.2	1.1	16.3	100.0	95.9	60.3	23.6	12.0	4.1
1958	100.0	68.3	6.7	10.1	14.9	1.2	16.1	100.0	99.7	64.0	24.0	11.7	0.3
1959	100.0	63.6	8.9	10.7	16.8	1.3	18.1	100.0	93.7	57.1	25.0	11.6	6.3

TABLE 4 (3)

SOURCE: As for Table 4 (1)

Price Indices(1952 = 100)¹

Items Year	General Consumer Goods price index	Producer Goods price index	Inventory price index
1946	17.1	8.3	12.3
1947	43.4	21.3	31.2
1948	72.9	42.8	56.4
1949	85.5	58.0	70.4
1950	83.6	72.7	77.6
1951	96.1	101.5	99.1
1952	100.0	100.0	100.0
1953	108.7	102.9	105.6
1954	113.8	96.8	104.4
1955	113.5	97.8	104.9
1956	115.0	108.2	111.3
1957	117.5	107.2	111.9
1958	117.2	98.8	107.1

Table 5

1. The fiscal year 1952 is often used as a base year. This is because the post-war inflationary trend had largely expired by this time.

Source: Recalculated from statistics based on the 1934-36 average prices, listed in National Income White Paper, 1958, Reference Table 4, p. 198.

Labour Force (1,000 persons).

Period	Population		Labour Force				Totally Unemployed	Not in Labour Force	Rate of Increase of Total Population % of previous year	Rate of Increase of Labour Force % of previous year.
	Total	Adults	Total	Working Population						
				Total	Agriculture & Forestry	Non-agri-culture				
1950	82,900	55,240	36,160	35,720	17,410	18,310	440	19,080	-	-
1951	84,300	56,260	36,600	36,220	16,170	20,050	390	19,660	1.7	1.2
1952	85,600	57,440	37,750	37,290	16,370	20,920	470	16,690	1.5	3.1
1953	86,760	56,900	39,570	39,120	16,900	22,220	450	17,340	1.4	4.8
1954	88,030	57,940	40,200	39,620	16,500	23,120	590	17,710	1.5	1.6
1955	89,060	59,060	41,560	40,880	16,860	24,020	680	17,430	1.2	3.4
1956	89,980	60,400	42,350	41,720	16,450	25,270	630	17,990	1.0	1.9
1957	90,760	61,950	43,360	42,840	16,070	26,770	520	18,330	0.9	2.4
1958	91,580	63,070	43,680	43,120	15,470	27,650	560	19,320	0.9	0.7
1959	92,460	64,570	44,280	43,700	15,370	28,330	580	20,210	1.0	1.4
1960	93,250	65,670	45,150	44,720	14,920	29,790	430	20,400	0.9	2.0

1. Column 9 and 10 are my own calculation. TABLE 6.

Source: Statistics Bureau, Prime Minister's Office.

Mortality and Birth Rates (per 1,000 population).

Year/Items	Birth Rate	Death Rate	Natural Increase rate.
1947	34.3	14.6	19.7
1948	33.5	11.9	21.6
1949	33.0	11.6	31.4
1950	28.1	10.9	17.2
1951	25.3	9.9	15.4
1952	23.4	8.9	14.4
1953	21.5	8.9	12.6
1954	20.0	8.2	11.9
1955	19.4	7.8	11.6
1956	18.4	8.0	10.4
1957	17.2	8.3	8.9
1958 ¹	17.9	7.4	10.5
1959 ²	17.6	7.3	10.2

TABLE 7.

1. Preliminary

2. Estimates based on Jan. - Sept. preliminary report by the Institute of Population Problems, Ministry of Welfare.

Source: Vital Statistics Reports listed in Tachi, M., Population Trend and Economic Growth in Japan, Publication of Institute of Population Problems, Ministry of Welfare.

Change in the Distribution of the Working Population
between Industries.

Year	Total	Primary ⁵	Secondary ⁵	Tertiary ⁵
(A) Real Number (in million)				
1920 ¹	27.0	14.4	5.6	6.9
1930 ¹	29.3	14.5	6.0	8.9
1940 ¹	32.2	14.2	8.4	9.6
1947 ²	33.3	17.8	7.4	8.1
1950 ³	35.6	17.2	7.8	10.6
1955 ⁴	39.3	16.1	9.2	13.9
(B) Proportion				
1920	100	54	21	26
1930	100	49	20	30
1940	100	44	26	30
1947	100	53	22	24
1950	100	48	22	30
1955	100	41	24	35

TABLE 8.

1. For total employed.
2. Employed 10 years old and over,
3. Employed 14 years old and over,
4. Employed 15 years old and over.
5. See Table 3.

Source: Population Census Reports. listed in Tachi, M.,
ibid., See Table 7.

Index of Per Capita Gross National Product at
Constant Prices (1950 = 100).

Items Year	Index
1950	100.0
1951	111.6
1952	121.5
1953	127.9
1954	131.0
1955	142.6
1956	152.7
1957	162.1
1958	166.5

TABLE 9.

Source: Calculated from Tables 1 and 6.

Estimated Population by Three Major Age Groups

(thousand)

Age Year	Estimated Population				Number of Increase			
	Total	0-14	15-59	60≤	Total	0-14	15-59	60≤
1961	94,850	28,096	58,201	8,553	918	-759	1,410	267
1962	95,768	27,337	59,611	8,820	876	-914	1,531	260
1963	96,644	26,423	61,142	9,080	829	-961	1,577	212
1964	97,473	25,462	62,719	9,292	772	-766	1,314	223
1965	98,245	24,696	64,033	9,515	753	-602	1,179	177
1966	98,998	24,094	65,212	9,692	764	-438	934	268
1967	99,762	23,656	66,146	9,960	792	-272	804	261
1968	100,554	23,384	66,960	10,221	825	-114	659	279
1969	101,379	23,270	67,609	10,500	837	-73	637	273
1970	102,216	23,197	68,246	10,773	4,111	349	2,429	1,333
1975	106,327	23,546	70,675	12,106	3,361	167	2,126	1,068
1980	109,688	23,713	72,801	13,174	2,155	-467	1,119	1,503
1985	111,843	23,246	73,920	14,677	1,100	-1,501	344	2,258
1990	112,943	21,745	74,264	16,935	350	-1,394	-618	2,361
1995	113,293	20,351	73,646	19,296	-240	-664	-1,521	1,945
2000	113,053	19,687	72,125	21,241	-945	-213	-2,782	2,050
2005	112,108	19,474	69,343	23,291	-1,861	-333	-4,129	2,600
2010	110,247	19,141	65,214	28,891	-2,718	-728	-2,404	415
2015	107,529	18,413	62,810	26,306				

TABLE 10.

Source: Future Population Estimates for Japan by Sex and Age, estimated in June 1960, Institute of Population Problems, Ministry of Welfare, Research Series, No. 138, pp.8-9.

tinue at a declining rate in subsequent years.

Thus, we know that the economy is not only growing but also undergoing a structural change in its industrial composition and in the age distribution of the population. In addition, a very rapid rate of growth has been experienced without particularly a significant rise in prices in recent years. Moreover, the economy is still showing a very high rate even after production has recovered to the pre-War level. What is the reason which caused this high rate of growth?

In order to illustrate the point clearly, we will firstly set out a Cobb-Douglas type production function. It is given as

$$P = a L^{\alpha} K^{\beta} (1 + \gamma)^n$$

where P, L and K are indices for output, labour and real capital respectively; α , β , and a are parameters and $(1 + r)^n$ the 'trend factor'.¹ The formula says that the rate of economic growth is a function of supply of labour, supply of capital (including land as capital), and technical progress.

It must first of all be mentioned that we are not going into the calculation of values of this function. We are simply going to treat it as a device of classification. An aggregate demand 'function' which determines whether production will be fully utilized or not, must also be considered. However, this theoretical presentation has the advantage that it provides a framework for discussion of the problem of the effect of the Pension Scheme on growth

Commonly accepted explanations for the high rate of growth may be found in the following factors.

First, the supply of labour was abundant. In the transitional

1 An example of the use of these functions for the analysis of fiscal policy is found in Peacock, A.T., In FISCAL PROBLEMS IN SOME AFRICAN COUNTRIES. Conference on the Economic Development of Africa South of the Sahara, International Economic Association, July, 1961, p.15

period, immediately after the War, a large amount of unemployment was created both amongst general workers and technicians. The majority of them had reached a certain standard of education and some had possessed high technical skills. Those were mostly ex-soldiers, or civilians, who were deprived of their War-time jobs, many of whom had returned home from abroad after the end of the War. Apart from these transient factors, the supply of labour has been abundant because of the rapid rate of increase in the working age population. (See Table 6). Moreover there existed a widespread "concealed excess of employment,"² in agricultural sectors, in small-sized industries and among self-employed or in family workers. Therefore, production was not restricted by a shortage of labour.

Secondly, the tempo of technical progress has been very rapid. This has mainly taken the form of a high rate of utilisation of technological innovations, developed in more advanced countries during and after the War. The changes in the pattern of consumers' demand towards durable consumption goods has accelerated the tempo of technical progress. At the same time, a high rate of technical progress has stimulated a large demand for capital equipment.

Thirdly, a high rate of capital formation has been possible. In the earlier years, despite the War, some important factors of production were relatively plentiful. There was an excess of production equipment, technical and managerial skills, etc. Rapid

2. This expression is very commonly used in Japan to indicate the condition when labour force is utilized in a very inefficient way.

recovery was therefore possible. Aid from the U.S.A. was another important factor. Japan was also able to call upon domestic sources of savings, reflected in a very high savings ratio.³ Personal savings, as well as the government surplus were important.

Several reasons have been given for the high rate of personal savings, such as a stable pattern of living or of consumption, in spite of a rapid growth in personal income; and high incentives to save, because of the demand for house construction, instability in employment and insufficiency in social insurance services.⁴ A high rate of return was offered by the increasing profitability of business enterprises (shown in a sharp rise in the share index). High rates of interest and a strong competition between banks in raising loanable funds are additional reasons given.

The role of the government in increasing the supply of funds was also important. Apart from the forced saving produced by inflation immediately after the War, Post Office Savings and forced savings via national insurance schemes as well as general taxation, are also worthy of mention. A decrease in military expenditure and partial substitution of it by an increase in public investment caused an increase in capacity. In the supply of loanable funds, the contribution made by Central Bank credit, was important. Taxation policy also facilitated the modernisation of equipment by means of generous depreciation provisions.

Turning now to the balance of payments position, an increase in

3. From Gross Savings Table and National Income Table, we can derive that the savings ratio has been 28.6% between 1951-1959 average. National Income White Paper, 1959, p. 158 and p. 165.

4. See Hoshimo, S., "Economic Growth and Employment Structure", in Growth and Structure of the Japanese Economy, edit. Okita, ibid. p. 64.

the competitive power of Japanese exports⁵ and, consequently, a high rate of increase in exports must be mentioned. The increase in exports has financed a growth in imports of raw materials, (and equipment), which have added to available capital resources. A decrease in the import ratio after the War may also be noted.⁶ This has caused an increase in the supply potentialities in the sense that a higher rate of economic growth, without being restricted by international balance of payment difficulties, has become possible, than would otherwise be the case. This has furnished a condition for rapid growth by raising the ceiling of the international balance of payments, which has often become a bottle-neck in the Japanese economic growth. How efficiently has this high rate of capital formation contributed to the economic growth may be illustrated by the fact that the gross marginal capital/output ratio is calculated as 3.3, 1949-1957 average.⁷

The demand side must now be considered. A high rate of economic growth has been made possible, because of sufficient

⁵ This is usually explained by the comparative stability of the price level in Japan, (after the transition period), when prices were rising abroad. Takahashi, T. *ibid.*, p. 40. Mr. Shinohara however, emphasises favourable foreign exchange rate. See Shinohara, M., Growth and Cycle of the Japanese Economy, Sobun Co., June, 1961, p. 18.

⁶ The import ratio after the War was about 15% (1953-1958 average) compared to about 21% (1925-1939 average) of pre-War periods. The Economic White Paper for the fiscal year 1961 (Economic Planning Agency) points out a decline in imports of foodstuffs and a decrease in the price of imported goods. A change in the production structure towards heavy industrialisation and towards more round aboutness is sometimes raised as one of several reasons which caused a decrease in the imports ratio.

⁷ See Long Term Forecast of the Japanese Economy, Committee for Long Term Forecast, Economic Advisory Council; Economic Planning Agency, Aug., 1960, p. 832.

effective demand. Following the termination of the War, a strong reconstruction demand was observed. Moreover, consumption demand remained high. Reform of agriculture and the development of trade union movements have both usually been explained as important systematic factors which have sustained consumption demand. This has been explained by some as an enlargement of the home market. The role of government finance in the growth of investment has been very important and the increase in the burden of government expenditure has helped to maintain effective demand via an increase in social services, etc. The rise in exports has also had an important contribution towards an increase in demand, particularly between 1946 and 1950, reaching nearly 25% of the increase in total demand.⁸ It has been pointed out that in the process of time the emphasis has gradually been shifted from consumption and export demand to investment demand. The increase in investment demand for production equipment owes to the effect of changes in the consumption patterns (from foodstuffs and clothing to durable equipments, houses, and sundry goods and expenses, observable since 1953) and particularly to the effect of a high rate of technical progress on equipment investment demand, most prominent since 1955.⁹ A high rate of economic growth in itself, as well as a positive government attitude (as was shown in the Ten Year Plan to double National Income) may be a very important factor for demand increase.

Last of all, the combination of those factors of production in the dual structure of the economy¹⁰ is very often explained to have

⁸ See Miyazaki, I., *ibid.*, p. 30. Table 13.

⁹ Hoshino, S., *ibid.*, p. 61.

¹⁰ For dual structure of the economy, see Further Explanations 1.

worked favourably towards the economic growth. The concentrated development of large-scale capital intensive industries, combined with highly developed techniques resulted in an effective utilization of scarce capital towards a higher supply increase. The use of abundant labour in small and middle-sized labour intensive industries has enabled an increase in exports via cheap labour.¹¹

We will consider here whether or not this high rate of growth has taken place at a full capacity. If we consider unemployment, we see that it is extremely low as slightly over 1% of the total labour force (see Table 6), though, of course, this does not include millions of disguised unemployment (or concealed excess of unemployment). Apart from these, therefore, labour force was nearly fully utilized. The scarce factor of capital has been efficiently utilized in a most concentrated manner in large scale capital intensive industries. It is extremely difficult to say whether or not production equipment was working at full capacity. Nevertheless, in view of the strong effective demand observable in the past, the production equipment seems to have been working at a stage very near to full capacity level in recent years. Therefore one might be able to argue that the Japanese economy has shown a process of growth which is nearly similar to the full capacity growth.¹²

With this framework of economic structure in mind, we will go on to analyse the effect of the National Pension Scheme on economic

¹¹ Several other factors must be mentioned. Mr. Shinohara points out the importance of the effect of strong incentives of entrepreneurs to invest and their desire and ability towards production growth. He also points out that a long term cycle, of about 20 to 25 years, is observable in the pre-War Japanese economy and suspects that a high rate of growth experienced after the War may have some important bearings on an increasing trend of a long-term cycle. Shinohara, M., *ibid.*, pp. 18-20, 22-23.

¹² For more detailed discussions, see Okita, S. edit., Growth and Structure of the Japanese Economy, *ibid.*; Shinohara, M., *ibid.*; and also Growth of Japanese Economy, edit. (Ekonomisuto Co.), Nakayama, Tokyo University Press, Sept. 1960.

growth.

Further Explanations

1. Dual Structure of the Economy

We will analyse a little further here the causes and the features of the dual structure of the Japanese economy, in view of its important relevance to the economic growth. As to the causes, such factors as the excess supply of labour compared to scarcity in capital, the government financial assistance to key industries in the post-War critical periods, the giving of preferences in financial loans to big industries, tax preference policies, and, as a due consequence, a concentration of funds from banks to established, efficient, developing, and financially sound, large-scale industries can be mentioned.¹³ Thus the duality is seen in sharp discrepancies in wage rates, in efficiency, and in productivity, between modernised sectors and old-fashioned and traditional sectors, between large-scale industries and small and middle-sized industries, between the manufacturing sector and the agriculture sector, and between capital-intensive sectors and labour-intensive sectors.

If seen from the side of the supply of labour, the excess labour force has been absorbed in the dual structure of employment, i.e. inefficient absorption of labour in traditional sectors, such as, agriculture and family enterprises, and efficient employment of the labour force in the modernised secondary and tertiary

¹³ Mr. Shinohara describes the main characteristics of the duality of the Japanese economy as a continuous decline in the wage rate from large-scale to small-sized industries, caused by discrepancies in productivity. The special connection between large scale industries and banks has influenced capital equipment ratio and hence productivity. Shinohara, M., ibid., pp. 20-21.

industries. This duality in the employment structure causes us to be especially careful in treating the labour force as a factor of production in our later analysis of alternative forms of investment. Generally speaking, three possible cases may be classified in analysing the supply conditions for labour. In the first the supply of labour is elastic, and the choice of a method of production with more labour intensity means a significant increase in the contribution of labour to output, since a choice of a method with less labour intensity implies unemployment. The second case is applicable where a large supply of labour is absorbed in inefficient sectors and a choice of labour-intensive methods means a shift of labour from these sectors to the new investment. In this case, the net increase in the contribution of labour to output depends on the difference in productivity of two contrasting sectors. The third case is seen when the supply of labour becomes a scarce factor. Generally speaking, present-day Japan corresponds more or less, to the second case, while the future direction is towards the third.¹⁴

If seen from the side of technical progress, a rapid tempo of technical progress in large-scale, capital-intensive, modernised

¹⁴ It is interesting to note that Mr. Okita defines the condition of the supply of labour in around the present and the coming 10 years as "half restricted". He explains that the supply condition of labour is undergoing a long-term change from non-restriction to restriction, due to a gradual fall in the increase in the new labour force and a high rate of capital formation. He explains that the supply elasticity of concealed excess employment in the agriculture sector is only half elastic, since several long-term frictions will be expected in the shift of labour. Okita, S. "Will Agriculture Population Decrease to 40%?" Ekonomisto, Oct. 11, 1960. The analysis in this text is more concerned with the effect of the dual structure of employment on output growth in relation to the choice of forms of investment.

sectors, in contrast to slowness in that of traditional sectors, is observable. This has caused a clear-cut distinction between the stages of technical progress in these contrasting sectors.¹⁵ This feature of the pattern of technical progress suggests a special care in treating technical progress as a factor of production. That is to say that it may not be sufficient in our later analysis of alternative forms of investment on economic growth to treat technical progress as a mere, given, "trend factor". This is because technical progress has shown different tempos in these contrasting sectors, and the choice of forms of investment may affect differently these tempos of technical progress - choice of capital intensity will, in general, induce higher technical progress in capital-intensive industries, and vice versa - and, as a whole, may affect differently the tempo of the total trend of technical progress, and its contribution to future increase in output. This structural feature of technical progress attaches a special importance to the choice of technique in the investment decision of a fixed fiscal fund. Secondly, a pattern of technical progress may, in the long run, indicate a change in emphasis in methods of production. The fact that technical progress in Japan has mostly been towards

¹⁵ The point I am making here is a discrepancy of technological development between these two contrasting sectors. This may be understood as a dual structure of technical progress. This is mostly due to concentration of capital in large scale, capital-intensive industries, since this has enabled the latter to import developed techniques, and has also induced technological development in capital-intensive methods of production. Because of difficulty in isolating the effect of technological development on economic growth, this problem seems to be confused with the problem of increasing trend of productivity in the line with the increase in capital equipment ratio. However, it seems to me that this duality in the stages of technical progress is a very important point. Secondly, this is another aspect of the problem from the general description, that quality as well as the acquired technical skills of labour in Japan have been relatively high due to a high rate of education.

higher capital intensity suggests that the future direction of the economy may also be more capital intensive. On the other hand, as a short-term effect, if a tempo of technical progress in one sector has been artificially suppressed, this may cause a rapid progress in that sector in the future. An artificial protection of large scale industries has resulted in a high rate of technological development in these industries, but, on the other hand, a low rate in middle and small-sized industries. This may imply that the latter could enjoy a high rate of technical progress, and would achieve it if several impeding factors are removed. In very small sized industries, several impeding factors, such as out-of-date management, unhygienic labour conditions, feudalistic labour relations, etc. are still relevant. In medium-sized industries, conditions for a higher rate of technological development are gradually appearing as the supply of cheap labour dwindles away with the fall in the rate of increase in the labour force and the need to face an increase in foreign competition following the liberalization of foreign trade in addition to already severe domestic competition. A gradual increase in capital for these industries is now available. The importance of the role of the government in facilitating the modernisation and development of these industries by fiscal and financial measures will become apparent, if the past pattern of technical progress is well analysed.

From the capital supply side, the duality is most distinctly seen in a concentration of scarce capital in large scale, capital-intensive industries, accompanied by advanced techniques. This duality in the allocation of capital has caused a distinct difference in the productivity of labour between these contrasting

sectors, and has resulted in sharp differences in wage levels. This, in turn, has enabled the unmodernised sectors to employ an abundant cheap labour force towards an increase in production and exports. The dual structure in the pattern of production growth can be explained as due more to the increase in productivity than to the amount of labour in the one sector, and as due more to the increase in the quantity of labour rather than to productivity in the other sector. The fundamental question is whether, if a long run high rate of growth is the object, it is better to use fiscal and financial policies to maintain, or accelerate, this duality of the economy still in the future, or it is better positively to try to adjust this duality, and, if so, in what way. One idea will be shown in the last section in relation to the investment policy of the pension scheme.

2. Future of Factors of Production

We will here analyse the future outlook of three factors of production, and the problems they present. Let us start from the supply of labour. As Table 10 shows, the future total population growth and the growth of labour force will show a different pattern, namely that the rate of total population growth is expected to fall gradually, while the rate of the growth of labour force is still expected to maintain a very high rate in the very near future, and after a decade or so, begin to decrease sharply. This is because the pattern of population growth is undergoing a significant change towards "a decline in the birth rate and at the same time a decline in the mortality rate". (See Mortality and Birth Rate in Table 7), and thus the population structure is changing.

The working population is expected to increase by over 1 million

annually, until around 1966, and a sharp fall is expected after that. Moreover, shortages in the new supply of labour have already become apparent, in 1960, as the result of a sharp increase in demand, backed by an extraordinarily high rate of investment.¹⁶ Though there still exist millions of excess employees, in agriculture, in small sized industries, in self-employed and family enterprises - which still work as a structural barrier against pressures to increase wages - due to the rapid economic growth and a sharp fall in the birth rate, the condition of this excess supply of labour is gradually being reduced. The supply of labour is still abundant at present, compared to highly developed countries, yet it gradually will become inelastic in future, almost certainly in 10 to 15 years, if not in the next 5 years.¹⁷ Experiences in 1960 raise several important points of relevance to the formulation of future policy. First of all, the insufficiency in the supply of technicians was revealed.¹⁶ The need for an enlargement of technical education became apparent. Secondly, labour shortages have caused wage increases in low wage sectors. These have caused a decrease in the number of labourers in very small sized industries and in home industries, and this may be a future direction of the structural change. The increase in wages has gradually made it more difficult for middle and small sized industries to rely on cheap labour. This in turn has led to

¹⁶ Economic White Paper for Fiscal Year 1961, Economic Planning Agency, the Government of Japan; Printing Bureau, Ministry of Finance, Aug., 1961. pp. 42-44.

¹⁷ As to the supply elasticity of concealed excess employees, see note 14.

a need for an increase in productivity, or an increase in price. The need for modernisation of middle and small sized industries became apparent. The role of the government may have to be re-examined in this context. Thirdly, if the labour shortages have come to affect the economy to such an extent even at the present stage, the effort to increase the mobility of labour by removing impeding factors must be intensified. Fourthly, in view of the decreasing trend of the future supply of labour, measures to increase the quality of labour, (rather than quantity), must be strengthened. This leads to an increase in general education.

If we now turn to the supply of capital, it must, first of all, be admitted that it is extremely difficult to forecast any future trend. If, as a clue, the projection of the New Long-Range Economic Plan is introduced, this anticipates the annual rate of growth in gross capital formation between the planning period (1961-1970) to be as high as 8.2%. This means that gross capital formation is expected to be 8.3 billion yen forecasted thus 180% higher than 2.9 billion yen achieved in 1956-58 average. However, actual experience in 1960 and 1961 has shown a far greater figure than was expected, due to an extraordinary increase in equipment investment demand. If we reflect that this is due rather to structural reasons, than to accidental reasons, we may expect, in view also of all other factors considered before, that a considerably high rate of capital formation is more likely to be carried out in the future. Thus, a high rate of capital formation, in contrast to, a gradual fall in the labour force, may alter the comparative place of capital and labour, i.e. supply of capital may become elastic, while supply of labour may become inelastic, in the future. The role of technical progress, as well as the

choice of forms of investment, may become still more important in the future. Moreover the composition of capital, will have to change since the inadequate stock of social overhead capital may become more serious in the future as a high rate of equipment investment in the private sector continues.

The past tempo of the technical progress has been very rapid, due to a high rate of importation of techniques from more developed countries in order to narrow a widespread gap in the level of technique between Japan and those countries. Because of this, some people fear that the future tempo of technical progress will be reduced according as this gap narrows, while some others think that, since the level of technique in middle and small sized industries is still low, the tempo of technical progress as a whole will not decrease in the future. I think that this is two sides of the same phenomenon, and two points must be raised as to policy considerations. First of all, more effort will be needed to develop technical progress, as this gap narrows. This indicates the importance of investment in research. Secondly, sharp attention should be given to the development potentialities of medium sized industries. This involves an increase in government effort to facilitate the development of those industries. The latter may be more important for the short term, while the effect of the former may not appear in this short run.

We have analysed the factors which have caused a high rate of growth in Japan after the War in line with the factors of a Cobb-Douglas production function. We have analysed the features of the dual structure of the economy, the future trend of those factors of production, and the problems they hold. By so doing, many of the

factors which may limit the future economic growth of Japan were revealed. We will simply add and stress two fundamentally important possible limiting factors, i.e. the possible difficulty of the international balance of payments, and the possible appearance of insufficiency in social overhead capital.

3. Adequacy of the Assumptions on Demand

A consideration of the investment policy of the pension scheme leads largely to, or becomes identical with, consideration of total fiscal investment policy, because of its special institutional characteristics. Therefore, the analysis of this section will facilitate chiefly the analysis of the investment policy of the pension scheme, i.e. the effect of the form of the investment on economic growth, which will be dealt with in Section 4. However, one point of the analysis of this section, related to the future trend of demand, will directly facilitate the analysis in Section 3, of the effect of the pension scheme on investment and on economic growth.

Here the analysis starts by employing a Harrod-Domar type growth model, and explains how the scheme affects investment and output from the supply side. However, we do not know exactly how the demand side will react to it. We have analysed in Chapter IV that the impact effect of the pension scheme may take a positive sign, at least, for the coming 20 years, but we are not exactly sure that sufficient demand is always guaranteed to increased capacity. The analysis in the text has revealed that effective demand has been constantly high after the War. Above all, recent equipment demand has been remarkably great. This has been caused

by a high rate of technical progress, as well as by the structural change of consumers' demand. The necessity for firms to strengthen international competitive power to prepare for the liberalization of foreign trade has also been an important factor. These factors suggest that the demand pressure is structurally strong and that this tendency is not likely to be reduced so easily in the future. If technical progress spreads to the middle sized industries, equipment investment demand in these industries will be increased. Trade union movements are expected to be strengthened. The supply of labour will increase for some time yet, and wage rates will rise as the result of a high rate of capital formation. An increase in social services will be expected in the future, and the pension payments may also contribute towards demand increases. Consumers' demand is not likely to become insufficient in the conceivable future. In view of the above, it may not be unrealistic to assume that sufficient effective demand is more likely to be guaranteed in the future for the increase in capacity financed by the pension investment. In the following analysis of Section 3, it will be assumed that restriction of capacity increase by insufficient demand is not expected.

Section 3. Effect of National Pension Scheme on
Investment and on Economic Growth.

The introduction of the National Pension Scheme will, first of all, affect one of the three factors of production previously analysed, i.e. supply of capital. On the other hand, the scheme as such will not initially affect other factors of production. Then we can illustrate how the scheme raises the level of investment, and thus affects the rate of economic growth, by using a simple Harrod-Domar type of growth model. We can treat this as a special case of a more generalised production function, e.g. one of the Cobb-Douglas type.

It must, first of all, be made clear that the Harrod-Domar type model is very simple. It is also assumed that fiscal and monetary policies can be flexibly adjusted so as not to cause inflation or deflation, and that no restriction of capacity increase by insufficient demand is expected.

Now the introduction of the National Pension Scheme will cause an increase in investment for at least twenty years to come. (See Table 2, Ch. IV). This is obtained as the summation of the increase in investment via surplus formation and a decrease in investment via a decrease in undistributed profits due to the interest payments from the private sector to the pension scheme.¹ This will affect the output growth. Let us

¹ Other factors such as psychological effects on peoples' incentives to save, and entrepreneurs' incentives to invest, etc., and also the possible interference of public investment on private investment, etc., are neglected. The effect of the collection of social security tax, of a shift of a part of the interest burden of the private sector to personal income, and of pension payments, on savings, and on investment, are as well, neglected.

analyse it by employing a very simplified investment function.

Let us assume that the level of investment in real terms is given as

$$I_{n-1}^R = b Y_{n-1}^R \quad (1)$$

where I^R is real net investment, b is a rate of undistributed profit to real national product and Y^R is real national product.^{2,3}

Let us express the relationship between real national product (Y^R) and real net investment (I^R) as

$$\sigma (Y_n^R - Y_{n-1}^R) = I_{n-1}^R \quad (2)$$

where σ is the incremental capital/output ratio. Then from formulae (1) and (2), the general solution is obtained as

$$Y_n^R = (1 + \frac{b}{\sigma})^n Y_0^R \quad (3)$$

If this is re-written in the form of the rate of growth,

$$\frac{\Delta Y^R}{Y^R} = \frac{b}{\sigma} \quad (4)$$

The effect of the introduction of the pension scheme on the increase of the growth rate of the output can be understood in the same way as the increase in the investment ratio b in formula (4). How far the investment will be increased can be analysed in the following way.

² This and subsequent growth models are based on analysis in Peacock, A.T., *ibid.*, pp. 12-13.

³ The reason why this simple assumption is adopted is because it will facilitate clarification of the analysis showing how the autonomous investment due to the pension scheme influences the growth paths.

The changes in investment via surplus formation of the pension scheme (I^S) are obtained as the excess receipts over expenditure, i.e. the summation of social security tax (T) and the interest payments from the private sector (R) minus pension payments (P)

$$I_{n-1}^S = T_{n-1} + R_{n-1} - P_{n-1} \quad (5)$$

On the other hand, the same interest payments from the private sector to the pension scheme cause a decrease in investment. If the proportion of undistributed profits to real national product is assumed to remain constant before and after the interest payments, the level of real net investment after the introduction of the pension scheme ($I^{R'}$) is obtained as follows from formulae (1) and (5) so that

$$\begin{aligned} I_{n-1}^{R'} &= b (Y_{n-1}^R - R_{n-1}) + I_{n-1}^S \\ &= b Y_{n-1}^R + T_{n-1} + (1 - b) R_{n-1} - P_{n-1} \\ &= I_{n-1}^R + T_{n-1} + (1 - b) R_{n-1} - P_{n-1} \end{aligned} \quad (6)$$

which may be written as

$$\Delta I_{n-1}^R = I_{n-1}^{R'} - I_{n-1}^R = T_{n-1} + (1 - b) R_{n-1} - P_{n-1} \quad (7)$$

where b is a rate of undistributed profits to real national product, R are interest payments from the private sector to pension scheme, I^S is surplus investment, T is social security tax, P are pension payments and ΔI^R is an increase in real net investment due to the pension scheme.

As can be seen from formula (7), the increase in real net investment due to the pension scheme in period ($n-1$) is a function

of social security tax (T_{n-1}), interest payments from the private sector (R_{n-1}), and pension payments (P_{n-1}). However, as a flat rate contribution system is adopted, these items of T , R and P , are decided as independent of the level of real national product. Let us treat, therefore, the increase in real net investment due to the pension scheme as an autonomous function.

$$\Delta I_{n-1}^R = \Delta \bar{I}_{n-1}^R (= \bar{T}_{n-1} + (1 - b) \bar{R}_{n-1} - \bar{P}_{n-1}) \quad (8)$$

This implies that the investment function of the economy as a whole is treated as the summation of the induced investment which is obtained as a function of the previous level of real national product and the autonomous investment which is decided by the size and the composition of the finance of the pension scheme.

Formula (8) shows that the greater the social security tax and the interest payments from the private sector to pension scheme, and the smaller the pension payments, the greater will be the increase in investment. If the formula is developed further it can be seen that, at least for the initial years, the smaller the rate of undistributed profits to real national product (b), and the rate of interest payments from the private sector to the total interest revenue, and the greater the interest rate (r), the greater will be the increase in real net investment (ΔI^R). As analysed in the fourth chapter, the above formula will be positive, with an increasing rate, in the beginning years, and

in later years will take negative values.⁴

How far the rate of growth will be altered depends on how great a significance the pension investment has in the total investment of the economy. However, we cannot discuss this in precise terms, since, first of all, so great an uncertainty surrounds the future. Moreover, we do not know exactly what will be the amount of the future decrease in investment via a decrease in undistributed profits due to the interest payments from the private sector to the pension scheme. This is because we do not know for certain how the future government will decide the distributive ratio of the pension investment between the private sector and the public sector, nor do we know what will be the future proportion of undistributed profits to national income. However, I am of the opinion that this decrease will be much smaller than the increase in surplus investment — at least, for the coming 20 years.

⁴ If the assumption is altered to the effect that the level of investment in real terms consists of the investment financed out of undistributed profits and other autonomous investment, formula (1) in the text is altered to

$$In_{-1}^R = b Yn_{-1} + \bar{In}_{-1}^R \quad (1')$$

where b is a rate of undistributed profits to real national product and \bar{In}_{-1}^R is autonomous investment.

The changes in investment via surplus formation of the pension scheme (IS) are obtained in the same way as in the text.

$$In_{-1}^S = Tn_{-1} + Rn_{-1} - Pn_{-1} \quad (5')$$

where T is social security tax, R are interest payments from the private sector to the pension scheme, and P are pension payments.

The level of investment after the introduction of the pension scheme (IR') is obtained in the same way as formula (6) in the text.

$$\begin{aligned} In_{-1}^{R'} &= b (Yn_{-1}^R - Rn_{-1}) + \bar{In}_{-1}^R + In_{-1}^S \\ &= b Yn_{-1}^R + \bar{In}_{-1}^R + Tn_{-1} + (1-b) Rn_{-1} - Pn_{-1} \end{aligned}$$

$= In_{-1}^R + Tn_{-1} + (1-b) Rn_{-1} - Pn_{-1} \quad (6')$ The changes in investment due to the pension scheme are obtained as autonomous. (The same as formula (8)),

$$\Delta In_{-1}^R = \Delta \bar{In}_{-1}^R = \bar{T}n_{-1} + (1-b) \bar{R}n_{-1} - \bar{P}n_{-1} \quad (8')$$

(We can illustrate this by statistical testing using projection figures given in Chapter IV.) See also formula (16) in note 11). Therefore, in order to get a rough idea on the scale of the scheme, we will compare the amount of surplus investment with the scale of the total Fiscal Investment and Loan Programme fund.

According to the government projection, the reserve accumulation of the pension scheme is expected to increase for over fifty years to come, particularly at a very high rate for the first decade or two. (See Table 11). The annual rate of increase will be as high as 110% for 1962/1961, 24% for 1966/1965, 115% for 1970/1969, 109% for 1975/1974, 107% for 1980/1979, etc. Very roughly speaking, this reserve accumulation is expected to exceed half a billion yen in 1970, and 1.3 billion yen in 1980, the latter nearly corresponding to the total balance of the Trust Fund Bureau Special Account in 1958, which forms most (over 60%) of the total balance of the Fiscal Investment and Loan Program fund in the same year.

The annual surplus formation is also expected to increase at a very high rate for the first decade or so, making the average rate of increase between 1961 and 1970 7.2% per annum; it then reduces to 2 to 1% for the next decade. (See Table 11). Roughly speaking, the annual surplus in 1970 is expected to be about 29%, and that in 1980 to be about 33%, of the total Trust Fund Bureau fund in 1958, (i.e. 0.25 billion yen), the latter exceeding half (about 60%) of the total Fiscal Investment and Loan Programme fund,

Reserve Accumulation and Net Increase of Reserve,
with Their Cumulative Rates of Increase

Fiscal Year	Reserve Accumulation (1 m. yen)	Index Number 1961 = 100	Net Increase of Reserve (1 m. yen)	Index Number 1961 = 100
1961	39,003	100.0	39,003	100.0
1962	81,948	210.1	42,945	110.1
1963	128,999	330.7	47,051	120.6
1964	179,674	460.7	50,675	129.9
1965	233,191	597.9	53,517	137.2
1966	289,623	742.6	56,432	144.7
1967	350,263	898.0	60,640	155.5
1968	414,055	1,061.6	63,790	163.6
1969	481,779	1,235.2	67,724	173.6
1970	554,481	1,421.6	72,702	186.4
1975	938,010	2,405.0	80,721	207.0
1980	1,357,053	3,479.4	85,077	218.1
1985	1,795,553	4,603.6	90,106	231.0
1990	2,260,026	5,794.5	92,752	237.8
1995	2,698,824	6,919.5	83,939	215.2
2005	3,412,786	8,750.1	60,397	154.9
2015	3,604,650	9,242.0	-19,225	-49.3
2025	3,276,066	8,399.5	-29,497	-75.6

TABLE 11

1. Source: The Reference Material issued in conjunction with the National Pension Bill, 1959, Ministry of Welfare.

(i.e. 0.43 billion yen)⁵. This means that the annual surplus in 1970 is about 17%, and that in 1980 is about 20%, if they are compared with the total Fiscal Investment and Loan fund. How much this surplus investment will correspond to the Fiscal Investment and Loan fund in those years depends on the assumptions we make about the manner of rate of this investment increase. If we assume, for example, such a high rate of increase as 8.2% per annum, (which is the projected figure of the annual rate of increase of the total gross capital formation in the New Long-Range Economic Plan of Japan (1961-70)), the weight in 1970 will be reduced to 7% instead of 17%, and that in 1980 to 4% instead of 20%. If we assume a lower rate of investment increase than that - such as 7.2%, 6.5%, 5%, 4%, or 3% - the results in 1970 will be 7.4%, 8%, 9%, 11%, or 12%, respectively. The same assumption will cause the same ratios for 1980 to be 4%, 5%, 7%, 8% or 10%, respectively.

It cannot be over-emphasised that this is a very crude attempt in order to obtain a very rough idea on the future scale of the surplus investment. Actual figures in the future may be considerably different. Even apart from the general problems of the difficulty of projection, the estimates are based on rather rough assumptions, such as: only 70% of the compulsory entrants are able to contribute and only 85% of these are collected, which

⁵ Public Finance White Paper for 1959, Research Section, Ministry of Finance, July, 1960, p. 364. Table 7. The figure of the Fiscal Investment and Loan Programme fund corresponds to about one fifth (18.6%) of the total investment for 1958, i.e. 2.8 billion yen. See National Income White Paper for 1958, Economic Planning Agency, Feb. 1960, p. 13, Table 5. As to the mechanisms of the Trust Fund Bureau Special Account and also of the Fiscal Investment and Loan Programme, see Chapter 2.

seems to be too low as long term figures. This is because, if the economy grows at a considerable rate in the future, the present rate of contribution of 100 yen (2 shillings) or 150 yen a month is more likely to become a very negligible amount. Moreover, in view of this low contribution rate, and also a low pension payments rate, it is more likely that the amount of pension payments, as well as the contribution rate, will be increased in the future. The magnitude of the surplus investment may be considerably increased as the scale of the pension scheme increases. The coverage of the scheme may also be increased.⁶ The interest revenue, based on the assumption of the 5.5% per annum rate, may be increased in practice, at least for the near future.⁷ In view of all these, it is more likely that the future place of the pension scheme in the economy will become greater than was analysed in figures. At any rate, we have seen that the future surplus investment may not be a negligible amount. Moreover, this is the fund which the government can use according to its policy considerations. However, the figure does not show that the surplus investment of the National Pension Scheme as such will have a predominantly important place in the total economic growth. If, however, the surplus from other public pension schemes is taken into consideration,

⁶ The scheme covers only those who are not covered by other public pension schemes at present, but aims at a universal scheme in the future. See Chapter 2.

⁷ The interest rate for the fund of the Fiscal Investment and Loan Programme has been around 6.5% in recent years, and no sharp decrease is expected in the near future. However, in the long run analysis, whether or not this interest rate is maintainable raises a serious problem. See the following Section 4 as well as Chapter VI.

then the importance of these may be increased. Moreover, the most important factor of the effect of the National Pension Scheme is that the increase of its place in the Trust Fund Bureau fund, together with other public pension schemes, are affecting the total policy consideration of the Fiscal Investment and Loan Programme. Why it is so, and how it is so, we will analyse in the fourth section.

Before going into the next stage of the analysis of the effect of forms of investment, a slight modification of the previous model will be introduced. This is to illustrate one aspect of the effect of the pension scheme on growth with the aid of this simplified model and to discuss the problems it raises. As we have seen, the introduction of the National Pension Scheme will cause an increase in public investment via its surplus formation for a considerable while, (over thirty years to come by the government projection), of the transitionary periods of the scheme. On the other hand, the interest payments from the private sector to the pension scheme will cause a decrease in private investment via a decrease in undistributed profits. The collection of social security tax, the psychological influences on the people's incentive to save, etc., may still reduce private investment. Thus one clear cut aspect of the effect of the pension scheme on investment is seen in the form of an increase in public investment on the one hand, and a decrease in private investment, on the other.⁸

⁸ Public investment, distinguished from private investment, is used here in a very wide sense. This is because a part of the surplus is loaned to the private industries via government financial institutions, etc., though, of course, this part is subject to the government fiscal policies. If, however, we include this in the private investment, the private investment may be increased as well.

We will analyse it with the aid of the following model.

Let us assume this time that the level of investment in the real terms consists of government investment which is a fixed proportion of government (tax) revenue, and of private investment, which is equal to undistributed profits after the deduction of taxation at a proportional rate.⁹ Then

$$I_{n-1}^R = b Y_{n-1}^R (1 - t) + g t Y_{n-1}^R \quad (9)$$

where b is a rate of undistributed profits to real national product, t is general tax rate, g is a rate of government investment to government (tax) revenue, Y^R is real national product and I^R is real investment (net). b , t , and $g < 1$.

Within the framework of this investment function, the shift of investment from the private sector to the public sector implies a decrease in the first item of the right part of formula (9), i.e. $b Y_{n-1}^R (1 - t)$, and an increase in the second item of the right part of the same formula, i.e. $g t Y_{n-1}^R$.

In order to isolate and examine the effect of the shift itself of investment from the private to the public sector, let us assume a simplification in the financing mechanisms of the National Pension Scheme, viz., that the scheme causes a rise in the general tax rate from t to t_1 , by the amount of Δt . The government revenue, and consequently, the government investment will be increased by the same shift. If new level of real net

⁹ Peacock, A.T., *ibid.*, pp. 12-13.
The following growth model building is the introduction of Peacock's analysis with a slight alteration in the treatment of government investment. This alteration of the assumption is due to facilitate the explanation of the effect of the shift of investment.

investment is expressed as $In_{-1}^{R'}$, this will be expressed, from formula (9), as

$$\begin{aligned}
 In_{-1}^{R'} &= bYn_{-1}^R (1 - t_1) + g t_1 Yn_{-1}^R \\
 &= bYn_{-1}^R (1 - t - \Delta t) + g (t + \Delta t) Yn_{-1}^R \\
 &= bYn_{-1}^R (1 - t) + g t Yn_{-1}^R - b Yn_{-1}^R \Delta t + g \Delta t Yn_{-1}^R \\
 &= In_{-1}^R + (g - b) \Delta t Yn_{-1}^R \\
 \therefore In_{-1}^{R'} - In_{-1}^R &= (g - b) \Delta t Yn_{-1}^R \quad (10)
 \end{aligned}$$

From formula (10) the changes in investment due to the shift of investment from the private sector to the public sector are the multiplication of (1) the change in the general tax rate Δt , (2) the difference between the rate of government investment to government revenue and the rate of undistributed corporate profit to real national product $(g - b)$, and (3) the level of real national product Y^R .

If $g > b$ is satisfied, (which seems realistic in the Japanese case), the above shift of investment causes an increase in real net investment, and consequently, in a real national product. The size of the effect depends on the size of this shift, and consequently on the size of the finance of the pension scheme. The effect of this shift on the rate of economic growth is obtained as a function of the multiplication of $(g - b)$ and Δt . The last point will become clearer if the investment function is built into the growth model.

Let us express the relation between real national product (Y^R) and real net investment (I^R) as

$$\sigma (Yn^R - Yn_{-1}^R) = In_{-1}^R \quad (11)$$

where σ is the incremental capital/output ratio.

From formula (9) and (11),

$$Y_n^R = \left[1 + \frac{1}{\sigma} \{b(1-t) + gt\} \right]^n Y_0^R \quad (12)$$

$$\frac{\Delta Y^R}{Y^R} = \frac{1}{\sigma} \{b(1-t) + gt\} \quad (13)$$

$$= \frac{1}{\sigma} \{b + (g-b)t\} \quad (13')$$

The shift of investment from the private sector to the public sector alters the composition of the items in the parenthesis of formula (13) and thus affects the rate of growth. If the shift is understood as a simple increase in the general tax rate (Δt), then the effect of the shift on the rate of growth is obtained from formula (13') as $\frac{1}{\sigma} (g-b)\Delta t$, if the incremental capital/output ratio (σ) is assumed not to be affected by the shift of investment.¹⁰

The above analysis is just an attempt to illustrate one specific aspect of the pension scheme in a modified growth model, with great simplifications. However, if the complicated characteristics of each transaction of the pension scheme are introduced,

¹⁰ It is possible to introduce a further modification in the investment function by introducing the private investment financed by borrowings. If we assume that this is a fixed function of personal income (defined as real national product minus undistributed profit) after the deduction of taxation at a proportional rate, and if we assume that other things are unchanged, then the new investment function is obtained, instead of formula (9) in the text, as

$$I_{n-1}^R = b Y_{n-1}^R (1-t) + a Y_{n-1}^R (1-b)(1-t) + gt Y_{n-1}^R \quad (9')$$

where the first item in the right part of formula (9') is private investment financed out of undistributed corporate profits, the newly inserted second item is private investment by borrowings, and the third is government investment. As to the symbols of the second item, a is the rate of private investment by borrowings to personal income, $(1-b)$ is the rate of personal income to real national product, t is general tax rate. Other symbols are unchanged. If other things are unchanged, growth formula is obtained as

the model may not be sufficiently useful to explain the effects. If the surplus of the pension scheme is all invested, the rate of government investment to government (tax) revenue (g) in formula (9) will be increased, if other things are equal. This will increase the effect of the pension scheme on the rate of economic growth in formula (12). Moreover, if we consider that the levy of a flat rate contribution from a certain range of workers will

10 (Contd.)

$$Y_n^R = \left[1 + \frac{1}{\sigma} \{ b(1-t) + a(1-b)(1-t) + gt \} \right]^n Y_0^R \quad (12)$$

This may be rewritten as

$$\frac{\Delta Y^R}{Y^R} = \frac{1}{\sigma} [b(1-t) + a(1-b)(1-t) + gt] \quad (13)''$$

$$= \frac{1}{\sigma} [\{ b+a(1-b) \} + \{ g - (b+a(1-b)) \} t] \quad (13)'''$$

The shift of investment from the private sector to the public sector implies decreases in $b(1-t)$ and $a(1-b)(1-t)$, and an increase in gt in formula (13)'', assuming σ remains constant. If it is simplified as an increase in general tax rate t by the amount of Δt , the effect of this shift on the rate of growth is obtained from formula (13)', as $\frac{1}{\sigma} [g - \{ b + a(1-b) \} \Delta t]$. Where b and $(1-b)$ are the distributive ratios of undistributed profits and personal income to real national product, while 1 (unity) and a are the ratio of investment to a unit of undistributed profits and a unit of personal income, respectively. Consequently, $(1-b + a(1-b))$ shows the rate of private investment to a unit of real national product after deduction of taxation. As g is the rate of public investment to government revenue, the ^{right} item in the greatest parenthesis of formula (13)''' i.e., $\{ g - (b + a(1-b)) \}$, shows the difference in the rate of investment of a unit of revenue between the public sector and the private sector. If the public sector is assumed to have a greater propensity to invest than the private sector, i.e. $g > b + a(1-b)$, (which seems realistic in the case of Japan), then the shift will in this way accelerate the economic growth. In the same way it is possible to introduce a modification by assuming that private investment financed by borrowings is a fixed function of real national product. The result will be $\frac{\Delta Y^R}{Y^R} = \frac{1}{\sigma} [(b + a') + (g - b)t]$ (13''') where a' is the rate of private investment financed by borrowings to real national product, other things being equal. However, because of the speciality of each transaction of the pension scheme, these elaborations may not be so useful.

rather not affect the potential level of investment, or if we want to introduce the decrease in investment due to the interest payments from the private sector to the pension scheme - which is a function of the total surplus accumulation, interest rate, and the distributive ratio of the accumulated surplus investment between the private and the public sectors, and not a function of national income - then we must conclude that a further analysis will only be possible if we treat the pension investment as an autonomous factor. This we did in the previous analysis, as well as in the expenditure model analysis.

In spite of all these qualifications, one point is clear. This is that the introduction of the pension scheme will cause an increase in public investment. Therefore, we will briefly discuss the general problems of the increase in public investment with special reference to the economic, administrative and political conditions of Japan.

First of all, the increase in public investment enables the government to allocate a greater part of the investment fund of the economy to those sectors, the development of which the government regards to be essential. In an economy like that of Japan where historical and environmental conditions necessitated a rapid development in a shorter period than those of more developed countries, and some imbalance of economy gradually emerged, the increase in public investment may be in itself a desirable factor. This is because the government can, if it wisely utilizes the increased public fund, develop those sectors which are left behind in the process of a rapid economic expansion and remove some of the possible obstacles to further development.

The government can contribute more by strengthening social overhead capital, by advancing the quality of labour by technical and general education, by accelerating the technical progress by research investment, and by improving the environmental and social welfare facilities. The government may also be able to furnish more stable long term investment funds, with possibly at interest below market rates to the new equipment investment of key industries.

The increase in the proportion of government investment of the total investment also means that in the controlling power of the government on the economic activity. The government may, if it wisely operates public investment, be able to reduce economic fluctuations. These effects of the shift of investment may work favourably towards higher economic growth.

However, lack of sufficient competition in public investment and lack of willingness to invest in projects designed to foster economic growth may result in productivity increases which are less than would otherwise be the case if investment were in private hands. This inefficiency may become apparent when the above factors are combined with the inefficiency of bureaucratic control and political and social pressure on the distribution of funds. Even apart from the inefficiency of complicated procedures of paper administration of huge bureaucratic organizations, the inefficiency may also be noticeable in the production processes. A typical example is the road improvement work by daily workers organized as one of the policies of the Government to counteract unemployment. Daily workers sometimes even intentionally worked inefficiently so as to

postpone the completion of the work, for the completion of the allocated part of the road improvement sometimes meant their return to unemployment. Fixed wages, without consideration of efficiency, reduce the willingness of workers to work, and reduce productivity. This type of evil influence on productivity may appear, if sufficient care is not given, in public investment at large, particularly in those investments carried out by the government as its general policy in the government general account.

Even in the case of government affiliated organizations, the guarantee of status or jobs of staffs, inflexibility of wages, the government subsidies, and sometimes the guarantee of the status of monopoly, may reduce productivity by reducing the incentives to work of workers, and by hindering serious attitude of entrepreneurship. As the choice of the method of production is decided by the allocation of the budget, not always by the efficiency of technique, productivity may be sacrificed.

It is also worth pointing out that the productivity of public investment may be greatly affected by the way in which the fund is distributed and allocated. This point is particularly serious when the political or social pressure is too strong and the public investment is divided into too small units in order to satisfy all needs, and as a result productivity may not increase appreciably. To a certain extent, this has been the case in Japan. It may lead to procedural problems which are involved in decision making of public investment. The present situation, where a large measure of the investment policy is in practice decided by the Ministry of Finance in the name of the government,

may involve some risk of bureaucratic inefficiency. Interference by the ruling party, which has become more common in recent years than heretofore, may accompany the representation of diverse pressure groups. This may again lead to the distribution of funds in too small units. The participation of private enterprise or of experts in professional fields is in theory guaranteed by the councils system, but in practice has little effect; and this may need improvement. This procedural problem may lead us to discuss the possible forms of public investment. However, as the administrative details are out of the sphere of present analysis, and as some analysis of the mechanism of public investment has already been given in the second chapter, further remarks will be omitted at present.

The role of the government has been very great in the economic development of Japan. Partly because of this, the economic policy of the government has had a strong effect on private industries. Entrepreneurs were, in many cases, too sensitive to the government policy. In view of this, the policy formation needs to be carried out very carefully in Japan. The increase in the ratio of public investment may accelerate this tendency of too much sensitiveness of entrepreneurs to the government policy.

At any rate one thing is quite certain. It is that the increase in the weight of public investment increases the meaning and effect of the choice of public investment. It will become essentially important to examine the economic effect of different forms of investment, and to formulate a correct investment policy. The effect of forms of investment on economic growth will be analysed in the fourth section.

Section 4. Investment Policies of the National Pension Scheme and the Fiscal Investment and Loan Programme.¹

The aim of this section is to analyse the investment policies of the pension scheme, and of the Fiscal Investment and Loan Programme, mainly in the light of the effect of the forms of investment on economic growth. Before going into policy discussions, we will analyse why and in what way, the investment policy of the National Pension Scheme is institutionally so closely related to the general policy of the Fiscal Investment and Loan Programme. We will start it by introducing general controversies held in Japan relating to the investment of the surplus of the National Pension Scheme.

Prior to the start of the new National Pension Scheme², there had been strong controversy as to whether the fund should be operated uniformly with other funds in the Trust Fund Bureau, or independently by itself, separated from other funds. The former is the opinion of the Ministry of Finance. This opinion holds that the utilization of the fiscal funds should as a rule be planned and operated by the Exchequer. It may be justifiable under the situation where the operation by an independent pension fund nearly meant the separation of the pension fund from the control of the Ministry of Finance. However, at least theoretically, the pension fund may well be operated in an independent fund, if a special consideration has to be given to the nature of the fund. The crucially important point is that the

¹ As to the Fiscal Investment and Loan Programme, see Chapter 2.

² Mostly in 1959 and 1960.

fund should not be operated in separation from general employment policy. This implies that it must be as a rule controlled by the Ministry of Finance.³ This argument for the uniform operation of the fund also adds that the Fiscal Investment and Loan Programme has a greater tendency towards public investment which strengthens social overhead capital, such as the strengthening of a basic structure of the economy, construction of houses, improvements of welfare and livelihood circumstances, etc. It may be desirable for the fiscal fund to be utilized in a field not so competitive with private investment. However, the direct utilization of the pension fund for welfare facilities, etc., may not be a suitable long term policy for the welfare of the insured. In addition this view also states that the demand for the fiscal fund is very great, so that the new National Pension Fund is needed as a fund in the Fiscal Investment and Loan Programme, and, in view of the above tendency of the Fiscal Investment and Loan Programme, this is quite suitable for the welfare of the people as a whole. This part may sound a little too easy-going, partly because of the general opinion that the original objective of the introduction of the pension scheme is not to supply the government with fiscal funds, but to increase the welfare of the aged, and partly because the welfare of the insured is not so clear as it looks, and the investment policy of the Fiscal Investment and Loan Programme may not always be satisfactory. However, this opinion may be more reasonable than the following.

The claim to utilize the pension fund independently separated from other fiscal funds is, first of all, presented from trade union circles.

³ As to the controls by the Treasury in the United Kingdom, see Peacock, A.T. The Economics of National Insurance, William Hodge and Company Ltd., pp. 44-45.

They argue, that, as the National Pension Fund is composed of contributions compulsorily collected from self-employed of small firms, poor farmers and employees of small firms excluded from other public pensions, these contributions should not be used for the Fiscal Investment and Loan Programme which only benefits the big monopolistic capitalists and leads to the strengthening of rearmament under the new peace treaty conditions. This is more in the nature of political propaganda and we may omit further comment.

A further urge for an independent utilization of the fund comes from the government departments. First of all, the Ministry of Welfare claims that as the fund is composed of small compulsory contributions of people at large, it should be operated for the welfare of the people by the same Ministry. Secondly, the Local Government Agency presents the same sort of claim that, as most welfare administration is actually enforced by local governments, the fund should be used by the same Agency. Both of them are rather political claims to enlarge their own powers. These show the worst part of Japanese bureaucratic sectionalisms. However, the more dangerous point is that the problem of the welfare of the insured is apt to be judged so short sightedly as meaning only a direct return to the contributors.

It will be interesting to introduce recommendations or opinions on the utilization of the fund presented nearly at the same time in the midst of these controversies, by three different government advisory councils. The first of these is the "Proposals on the operation of the Trust Fund Bureau Fund" by the Trust Fund Bureau Council on

14th September 1960.⁴ This says that "the National Pension Fund should be deposited in the Trust Fund Bureau and be operated uniformly in the Fiscal Investment and Loan Programme, and that this suits the welfare of the people at large, consequently also the welfare of the insured." This proposal is nearly the representation of the opinion of the Ministry of Finance and therefore the appraisals and criticisms listed previously are applicable. However, the proposal continues that, "at the same time, a part of the annual increase of the deposit of the National Pension Scheme to the Trust Fund Bureau can be utilized for the improvements of those facilities as are suitable for the objectives of the National Pension Scheme within the limit of 25 per cent of all." This is a product of a political compromise between two opposite opinions and furnishes a way for the utilization of the fund for the welfare facilities. However, as will be discussed later, this Council ought to have given the indication that the direct loan for welfare facilities should be more or less limited in the transitory periods. This is because, as Professor Suzuki rightly points out, such items as social welfare facilities should fundamentally be met by current government general expenditures.⁵ At any rate, this proposal proved to be exactly the line which the government adopted later.

The second is the "Report on the Operation of the National Pension Fund" by the National Pension Council on 16th September 1960.⁶ This is

⁴ The Trust Fund Bureau Council is set up in the Financial Bureau of the Ministry of Finance to discuss the operation of the fiscal funds of the Trust Fund Bureau. Prime Minister is the Chairman, and the Minister of Finance is the vice-Chairman of the Council.

⁵ Suzuki, T. "Public Pension and Fiscal Investment". Municipal Problems. The Journal of the Tokyo Institute for Municipal Research. Vol. LI, No. 12, December 1960, p. 10.

⁶ The National Pension Council is set up in the Ministry of Welfare to discuss the problems related to the National Pension Scheme.

an interim report and says that "in view of the speciality in the nature of the National Pension Fund and of the tendency that the Fiscal Investment and Loan Programme will be decided politically, it will be inevitable that the Fund should be separated and operated independently from other fiscal funds." However, political influence on the Fiscal Investment and Loan Programme may be to a certain extent inevitable so long as parliamentary democracy is maintained. The main point is whether the actual investment policy formulated under the influence of political pressures helps the development of the national economy or not. Moreover, even although a separate fund is established, it should be put under the control of the Ministry of Finance, if harmony of the investment policy of the fund with the general employment policy is to be maintained. If this condition, i.e. the control by the Ministry of Finance, is guaranteed, the political influence will again become more or less inevitable. The report also recommends that "the fund should be operated as profitably as possible, so long as the finance of the fund is kept safe and sound." However, it is rather dubious to stress profitability so much. It is true that if the interest revenue of the fund increases, the rate of contribution or the Exchequer Supplement may be reduced, or the pension payments could be increased. However, the increase of the interest rate on the loan to unprofitable - but necessary - government enterprises or public works may simply mean an increase in taxation. Moreover, if the pursuit of "profitability" contradicts with private investment so as to effect a reduction of expansion in industries, and consequently the slowing down of the rate of economic growth, or if inflation is caused, the result will be disastrous. It is also dubious to stress safety and soundness in social insurance. Fundamentally, the finance of social

insurance is based on the real national product of the period and on the taxation authority of the government. The harmony with general economic policy may be more important, hence if inflation is caused, it can easily upset actuarial soundness.

The third is the "Demand on the Operation of the Public Pension Fund" by the Social Security System Council on 6th October 1960.⁷ This says that "all the social insurance funds should as a rule be controlled and operated as one fund." "However," it says, "as a transitory measure, the funds can be deposited in the Trust Fund Bureau, but a special legal guarantee is necessary so that the fund may be operated in a special account, separated from other fiscal funds, in order to achieve the objective of social security." This also is not so helpful in developing the discussion as it does not clarify what actually is the welfare of the insured.⁸

Most of these discussions were of a mere political nature. Interest has been focussed on the distribution of powers in the government departments and no sufficient economic analysis has been given. Nevertheless, this record shows in what kind of political controversy, as well as pressures of the public opinion, the present institutional framework has been realized. As a conclusion to these controversies, the government has decided the way of treatment of the investment of the National Pension surplus in line with the proposal by the Trust Fund Bureau Council mentioned above. That is to say that a part (25% for 1961) of the surplus of the National Pension Scheme is utilized

⁷ The Social Security System Council is set up in the Prime Minister's Secretariat to discuss the problems related to the social security systems at large. Scholars, members of Parliament, government officials, representatives of interested groups, are represented. As the problem of the operation of the National Pension Fund relates to these three government advisory committees, they all made their recommendations independently.

⁸ Detailed explanations on these recommendations are given in Suzuki, T. *ibid.*, pp. 8-9.

for investment in welfare facilities, while the rest is totally deposited to the Trust Fund Bureau Special Account and is operated with other fiscal funds in the Fiscal Investment and Loan Programme.

Regardless of whether we approve this treatment to be a desirable solution to the problem or not, if we are to analyse the investment policy of the National Pension Scheme under this institutional set up, we have to consider it in a wider field of fiscal policies than a mere pension investment, i.e., the investment policies of the Trust Fund Bureau Fund, and of the total Fiscal Investment and Loan Programme. These are crucially important. (See Chapter II, Section 4). Moreover, this should not be taken to mean that the new reserve formation of the National Pension Scheme simply implies an increase in the total supply of funds, whose investment policies are, as a whole, already fixed or very inelastic. If it were so, the consideration of the total investment policies of the Fiscal Investment and Loan Programme would be completely outside the scope of our present analysis of the investment policies of the National Pension Scheme reserves. We would have been left here with minor problems of the investment policies of an exceptional part (i.e. 25% in 1961) of the pension surplus, (i.e. whether hospitals should be increased more than recreation centres, etc.), and whether or not this 25% rate is adequate, as distinct from the fundamental problem as to whether or not this exceptional treatment is a desirable solution. Nevertheless, in practice, a significant change in the composition of the source of the Trust Fund Bureau fund, as well as in the total Fiscal Investment and Loan Programme, will inevitably affect the direction of the total investment policies of the Trust Fund Bureau fund, and of the total Fiscal Investment and Loan Programme. Moreover, the controversies

previously mentioned have aroused a keen interest in the public as to the way in which the pension investment will be utilized. This is acting as a pressure on the decision making body of the investment policy of the Fiscal Investment and Loan Programme.

The government explanation is that the introduction of the National Pension Scheme and the increase in the source of fund are affecting the total policy considerations of the Fiscal Investment and Loan Programme in such a way that more emphasis has come to be given to welfare considerations, such as housing, environmental improvements, welfare facilities, etc. It says that, moreover, this is accelerating the changing trend of the total investment policies of the Programme by shifting emphasis from the supply of funds from industrial developments to the sectors with social and public interest.^{9,10}

Moreover, in view of an increasing pressure, the government has, out of political considerations, introduced an alteration in the management of the Trust Fund Bureau Special Account. Namely, the government has adopted a method from the fiscal year 1961 budget, to show a classification of the Trust Fund Bureau fund by use with one sub-division of the source of the fund. Thus we have come to be informed of the use of the pension schemes, etc., and of the other group of funds such as Post Office Savings, etc. We are not yet informed of the use of funds corresponding to the National Pension Scheme surplus as such. Therefore, we have, at any rate, to consider the investment

⁹ Suzuki, H. "New Direction of the Fiscal Investment and Loan Programme," Fiscal and Financial Statistics Monthly, edit. Ministry of Finance, Printing Bureau of the Ministry of Finance, No. 116, April, 1961, p. 18. Mr. Suzuki holds the post of chief of Fund Section, Financial Bureau, Ministry of Finance. The formation of the Fiscal Investment and Loan Programme is handled in the same section.

¹⁰ As for the changing trend of the total policy of the Fiscal Investment and Loan Programme, see Chapter II, Section 4.

of the National Pension Scheme in a greater scale than a mere National Pension Scheme surplus. Nevertheless, the new treatment may be a significant change, since not only were we not informed of the use of the funds, but the difference in the source of funds within the Trust Fund Bureau were not considered in the allocation of the funds previously, in view of the uniformity of the Trust Fund Bureau fund. This may gradually alter the nature of the Trust Fund Bureau Special Account in the future.

In the short run, however, it may not be correct to argue that, since the government began to reveal the sub-division of the use of the fund, the nature of the Trust Fund Bureau and its operation are immediately changed. The alteration seems to be of a more political nature, rather than of an economic. This is because the government was urged to make some gesture to the public in order to show that the National Pension Scheme surplus is being used satisfactorily for the welfare of the insured. If the true object lies more in the political gesture rather than in the economic consideration, the alteration of the treatment may not produce any substantial change in the policy formation. This is because the government can, after forming the total Programme, distribute a large proportion of one group of funds, (i.e. those related to pensions, etc.), to the welfare facilities. This may give an outlook to the public that the pension reserves are very adequately utilized. But the government may be easily able to compensate it by another group of funds. As a matter of fact, the government classification of the use of funds of the group related to pensions showed a heavy concentration on welfare facilities, construction of houses, medium and small sized industries, etc. But a heavy concentration in industrial development and encouragement in exports is observable for

the fund from the Post Office Savings, etc. We can add that we can sometimes alter the emphasis of a scheme by altering the items of its sub-division. Even though the sub-divisions of the use of funds are shown, the Trust Fund Bureau Special Account is still operated as one Account. This suggests that, even though a new treatment is adopted, we have still to consider the problem of the investment of the National Pension Scheme Surplus in close relation with the Trust Fund Bureau funds and with the Fiscal Investment and Loan Programme. We do not necessarily need to commit ourselves to the government explanation that the funds corresponding to one group are operated in such and such purposes. Nevertheless, it may be fairer to understand that the increase in the National Pension Scheme surplus will, by one way or the other, affect the total policy considerations of the Trust Fund Bureau, and of the Fiscal Investment and Loan Programme. We can understand that the new treatment will accelerate this effect.

The introduction of the National Pension Scheme and the increasing importance of its surplus will thus bring us to re-examine the total Fiscal Investment and Loan Programme. These impetus towards re-examination may be a desirable thing, because more careful analysis must be given to this crucially important tool of the fiscal policies in view of the changing pattern of the economic structure of Japan (as we partly saw in Section 2).

We have started our analysis on the function of the National Pension Scheme by way of extracting it from the total Fiscal Investment and Loan Programme. Now we must end by discussing the effect of forms of investment from the point of view of the total Fiscal Investment and Loan Programme. Hence, the speciality, as well as the importance, of the investment policy of the National Pension Scheme surplus in

Japan lies in this close inter-relationship with the total investment policies of the Fiscal Investment and Loan Programme.

In view of all we have said, we shall start from a general discussion on the effect of forms of investment on economic growth, with the structural framework of the Japanese economy in mind.

Assume that the Harrod-Domar type of growth model, introduced in the previous section, which is based on the assumption that the level of the real net investment is a fixed function of real national product, is kept in mind. Then it follows that the smaller the incremental capital/output ratio, the greater will be the output, and hence the rate of growth. The analysis is carried out by considering how this ratio may be affected by the combination of factors of production. The amount and composition of capital, (including land), the quantity and quality of labour, and the trend and structural pattern of technical progress will be considered as factors of production. The size of industry will be given special attention in discussion.

As to the relationship between capital and labour, it can be argued, in the crudest way, that in developing countries with a sufficient supply of labour and with scarce capital, the labour intensive method of production may be preferable; while in developed countries with an excess capital and with scarce labour, the capital intensive method of production may be suitable. As to the choice of a given amount of investment, if the supply of labour is assumed to be elastic and if the increase in employment is assumed not to affect the price mechanism, and if the condition is always satisfied that the increase in input of labour increases output, then the more labour is employed, the greater will be the increase in output. It follows that more attention should be given to the use of labour in

a development programme of countries with elastic supply of labour.¹¹

Admitting the importance of the point, the degree of applicability of the above proposition depends also on the economic structure and the stages of development of the country concerned. If the features of technical progress in Japan, i.e., the clear cut distinction between the stages of technical progress between modernised (generally more capital intensive) sectors and un-modernised (more labour intensive) sectors, as well as the importance of technical progress in deciding economic growth, are introduced in the analysis, the result of the choice of the labour intensive method of production rather than that of the capital intensive method may not generate so great an increase in output, as compared with the latter, such as is the case in countries where such a sharp duality of technical progress does not exist. Thus attention must be given to the importance of comparative efficiencies of technique according to the methods of production. This consideration is important in deciding the types and the sizes of industries to furnish the government investment fund.

Very small sized industries¹² of Japan are very poorly equipped with capital, and typically inefficient. The ratio of labour is extremely high compared to capital. From the point of a formal discussion of the greater labour input to a given capital, the loan for these small sized industries may seem to be a very promising choice for a higher growth. However, due to extreme inefficiency in most cases, these may not be a suitable choice. The problem of very small sized industries also relates to the general problem of optimal size

¹¹ See Peacock, A.T., ibid., p. 19.

¹² Very small sized industries referred to here roughly imply those firms with workers of less than 50.

of industries. However, the latter will not be discussed as such in this paper. The low quality and lack of entrepreneurship of entrepreneurs, lack of accumulation of techniques, lack of accumulation of experience of labourers, instability of employment, low wages, extreme negligence of labour conditions due to lack of understanding and intelligence of entrepreneurs and also lack of sufficient instruction by the government, feudalism in the labour relations - all these factors typify the difficulties of very small sized industries, and show the conditions which cannot fully be explained in a simplified production function. However, the stress on the inefficiency in technique may make it easier to understand this situation that very small sized industries, however labour intensive they may be, are in most cases not a suitable choice for fiscal fund, if higher growth is the aim. The problem of very small sized industries will reappear in the later stages of discussion as one of other criteria for fiscal investment, i.e. in improving social security and improving labour and hygienic conditions of these industries. This is a more social, rather than an economic consideration.

The problem of an individual choice of capital-labour ratio for a given increase in investment may be different from the problem of the choice of capital-labour ratio for the economy as a whole. Suppose that greater use of labour for the economy as a whole, for a given capital, always produces greater output. If a choice of capital intensive method of production, for a given increase in government investment, induces greater labour in labour intensive affiliated industries, and thus increases the total use of labour for the economy as a whole, more than the case in a choice of labour intensive method, then the capital intensive method will become

preferable. In the economy where the rapidly developing large scale, capital intensive industries are based on labour intensive, middle and small sized industries, this consideration of the spreading influence of employment generation may be an important factor. In the same way, the individual choice of a labour intensive method of production may not cause so great an increase in employment opportunities in the affiliated industries, or it may accompany investments of very capital intensive nature such as house building for workers, road construction, etc. These may absorb a large amount of a scarce factor - capital - of the economy with a small amount of labour. Thus, in total, the use of labour for the economy as a whole may become less than in the case of the individual choice of a capital intensive method of production. If this happens, the capital intensive may become preferable as an individual choice. However, it will be extremely difficult to imagine that the individual choice of capital intensive method for a given capital will induce, in general, a higher rate of employment for the economy as a whole, than the choice of a labour intensive method. On the contrary, under the present assumptions where the individual choice of labour intensive method for a given investment generates in general a greater output for the individual industries than the choice of capital intensive method, the former is more likely to induce higher rate of employment for the economy as a whole than the latter, unless otherwise can be proved. It follows that as the supply of labour in present-day Japan is still abundant compared to more developed countries, the use of labour may have to be given more attention than it is given now. Moreover, the choice of a capital intensive method may evoke some balance of payments problems, which will be expounded later.

As to the problem relating to the difference between the individual choice of capital or labour intensity and the consequence of this choice on the capital-labour ratio of the economy as a whole, apart from consideration of any possible divergences of multiplying influences of employment, the supply conditions of the labour force needs to be examined. This is because if the dual structure of the labour force in Japan is introduced, the analysis may have to be affected. The most typical example of the elastic supply of labour is the case where a large unemployment pool exists. In this case, the choice of a capital intensive method of production simply means that less labour power will be utilized than would otherwise be the case. The significance of the increase of the contribution of labour on output growth by choosing labour intensive method may be great in this case. However, under the specific features of Japan, it may be more practical to assume that the choice of capital intensive method will leave behind more labour in inefficient sectors, rather than in an unemployment pool. The labour in inefficient sectors, however, is contributing towards the increase in output via cheap labour, though in a very unsatisfactory way. The individual choice of a labour intensive method may increase the contribution of labour of the industry towards the economic growth, but the contribution of labour in inefficient sectors may be decreased. In other words, the choice of a labour intensive method may have a smaller incremental capital/output ratio for that investment and has a greater effect on growth than the choice of a capital intensive method, but may cause more increase in the incremental capital/output ratio in inefficient sectors and thus accompany a greater negative effect on growth than does the latter choice. In total the meaning of the choice of a labour intensiveness rather than a capital intensiveness, for the sake of growth, may be greatly reduced due to the supply conditions of labour. These features are yet different from those

case of more developed countries where labour is a scarce factor. If the supply of labour is very inelastic, a shift of labour may appear more obvious. In the case of Japan, the effect mentioned above, of the choice of method affected by the dual structure of labour may not be seen so clearly as the shift of labour in the case of more developed countries with scarce labour, but yet may be rather different from the case of less developed countries with abundant labour and with a very scarce capital. These analyses suggest that the fiscal investment policy of Japan must be based on the specialities of the structural features of the economy, and hence cannot follow blindly the policy recommendations of the more developed countries and still less cannot automatically adopt the propositions for less developed countries.

The analysis so far developed is based on the assumption that the level of real net investment is a fixed proportion of real national product. So the analysis has been limited to the examination of the effect of the choice of forms of investment on the capital/output ratio. However, if this investment function itself is affected by the choice of forms of investment, then further consideration is needed. The choice of a labour intensive method and more use of labour, will, under usual conditions, increase the share of earnings of wage (including salary) earners to real national product more than in the case of the choice of a capital intensive method. Other things being equal, the increase in the share of wages will cause a decrease in the share of undistributed profit. If the level of real investment is, one way or another, a function of undistributed profit, or, more precisely speaking, if it is a negative function of the distributive share of wages, the choice of a labour intensive method, via a greater increase in the share of wages, may reduce the level of real investment of the economy rather than in the case of

the choice of a capital intensive method. (Graphically this can be understood as a downward shift of an investment function). In such a case, even though the choice of a labour intensive method generates a greater increase in output than the choice of a capital intensive method for an immediate period, the latter may cause a greater rate of growth than the former in the long run. How far will the investment function be affected by the choice of a labour intensive method rather than the choice of a capital intensive method is also influenced by the supply conditions of labour. This is because the effect on wage shares may be different according to the supply conditions of labour, let alone the distribution ratios of other shares. If, again, the unemployed workers have been receiving unemployment benefits, the net increase in the distributive share of the working population may be less than in the case where no such system exists. The wider the applicability of the unemployment benefit and the smaller the difference between the wage level for increased labourers and the level of unemployment benefit, the less will be the difference in the schedule of the investment function based on the capital intensive method and the labour intensive method. If the choice of a labour intensive method causes a scarcity of labour in some sectors and thus causes an increase in the wage rate, the increase in the share of wages may become greater than the increase in the numbers of employment in labour alone indicates. If, by one way or the other, the supply of labour is not sufficiently elastic, this may be the case. The condition of elasticity of the supply of labour may be more significantly affected by several systematical factors and social conditions, rather than by the absolute amount of the existing labour force. Such factors, as persisting feudalistic human relations in small and middle sized

industries, family systems in agriculture sectors and others, regional imbalance in the pattern of industrial development, transportation and housing problems, etc., may hinder a swift and elastic supply of the existing labour. In the case of Japan, the choice of more labour intensive methods for fiscal investment may cause some scarcity of labour, though it might be temporarily, in some of the small and middle sized industries, and may have some inflationary effect. However, this may have, to some extent, an adjusting role of the dual structure of wages in improving the condition of cheap labour in inefficient sectors, though this is a consideration more social than economic. If the increase in the wage rate of some sectors spreads to other sectors, and to the economy as a whole, this inflationary effect may have significant bearings on the determination of the schedule of the investment function. The use of more labour may also via reducing the existing pressure of inefficient cheap labour against wage increases, cause an increase in the share of wages.

Relating to the effect of the choice of a labour intensive method on the wage rate, the difference in the types of labour, i.e., new labour force and the existing old labour force, apart from the distinction between skilled and unskilled, may need to be considered. In Japan, a life employment system is prevailing, i.e., workers usually work all their lives in a one and only firm, and the needs of the individual are the important determinants of wage rates, (the aged workers receive higher wages in general than the younger workers), so the new labour force of graduates from universities, schools, etc., which can be employed comparatively cheaply due to age, can be trained easily, can be used longer, and has better quality, is much preferred to the existing un- or under-employed labour force. The choice of labour intensive methods for fiscal investment may cause a scarcity for this type of new labour force, and hence cause an increase of

wage rates of this type. This may achieve a role in affecting a wage determination system towards payment by quality, rather than towards payment through age and necessity. This, in turn, may affect the elasticity of a supply of labour.

It is extremely difficult to say how far the choice of labour intensive rather than of capital intensive method of production will affect the investment function and thus the rate of economic growth. In the case of Japan, some shift of labour from inefficient sectors to new investment, as well as the unemployment benefit system, though not yet sufficient, may also mitigate the different impact of the two contrasting choice of production methods on investment function. A high rate of savings, and also a high rate of investment financed by private savings, may work in the same direction. On the other hand, the gradual shortages of a new labour force may cause a higher increase in the wage rate for this type of labour, in the case of the choice of labour intensive method than the capital intensive method, and thus increase the share of wages towards the slowing down of the rate of growth. The gradual decrease in the rate of increase of the supply of labour, together with a high rate of capital accumulation, may gradually reduce the elasticity of the supply of labour in the future. Thus as an investment choice in the future, when the supply of labour is gradually coming to be a scarce factor, a more capital intensive method, than otherwise, will become preferable. However, in view of the commonly accepted policy considerations, i.e., a high rate of, yet balanced, economic growth, and also in view of the present conditions of factors of production, too great an inclination towards capital intensity and towards the protection of large scale industries, may not avoid criticisms.

It is generally understood that, in view of the past trend, and also of the experience of other developed countries, more attention, than now, should be given to the capital intensive methods, with emphasis on the heavy and chemical industries in the development plan of manufacturing industries. The emphasis is, in general, attached more to the development of large scale, highly capital intensive methods, than to others, with a view to increase in these sectors international competitive power with more developed countries. However, as an investment criterion of a given amount of fiscal investment, a further consideration may be necessary in view of the speciality in the stages of structural development of the economy, technical progress, and the supply conditions of labour.

As has been explained before, the development of capital intensive large scale industries with high technique has been partly a result of an intentional lead by government policies. Because of this, a large amount of the fiscal investment fund has been used in these sectors. As a post-war policy, this may have been a wise method. First of all, capital was extremely scarce. This scarce factor needed to be concentrated in an essential sector, i.e., in key industries. Secondly, technical progress in middle and small sized industries was very low and management was not modernised. Loss of scarce capital in inefficient sectors needs to be evaded. Thirdly, employment of cheap labour in un-modernised sectors also contributed to the production increase. Thus the maintenance of a low wage rate, though socially undesirable, has helped towards rapid recovery of the economy. "Exports of labour intensive commodities, such as sundry goods and textiles, which are based on cheap labour, furnished a source of imports fund for raw materials and machineries needed for modernised,

capital intensive sectors."¹³ However, capital accumulation has since taken place. Due to a high rate of savings, it is increasing with high speed. The scarcity of capital has decreased its degree, and it is expected in the future that it will be replaced by the scarcity of labour. The economy has grown rapidly and now can supply a large amount of investment fund to large scale, capital intensive sectors, which could not previously develop without government help. Amidst these conditions, a very interesting trend of the economy has been pointed out relating to recent employment demand. As a government economist has explained, "a gradual trend of an intermediate or a balanced growth in employment, different from the development in the two extremes of capital and labour intensive sectors, is observable for recent years." "Enterprises are in the process of competitive growth, namely, growth in oligopoly in large scale sectors and growth in excess competition in middle and small sized sectors."¹⁴

This can be seen as one of the signs that the economic development, particularly that related to middle sized industries,¹⁵ is gradually reaching the new stage, different from, say 5 to 10 years ago. A high rate of capital accumulation and a high rate of economic growth are gradually inducing middle sized industries towards more modernisation, rationalization, higher efficiency of technique, and, in most cases, more capital intensivity, amidst severe competition. In a very crude way, the middle sized industries can be said to be less equipped with capital than very large scale, very capital intensive modernized sectors. This, in turn, means that a greater contribution from labour

13. Edit. S. Okita, Growth and Structure of Japanese Economy, p. 78, Shunjyō Sha. 1961.

14. Ed. S. Okita, ibid., p. 79. Mr. Okita holds the post of Director of General Planning Bureau, Economic Planning Agency, the Japanese Government.

on output may be obtainable from these middle sized industries, than very large scale, capital intensive sectors, as a choice of a given investment. The desirability of the development of middle sized industries has been acknowledged both by scholars and by the government, but the interest seems to have been limited only in correcting the dual structure of the economy and inequality of wage levels. The view point has been rather more social, than economic. Due to these considerations, the importance of the development of middle sized industries seems not to have been sufficiently understood. The place of this problem seems to be a subsidiary one in the government policy, which seems, in many senses, to be still looking towards very large scale, very capital intensive industries. Yet, the development of the middle sized industries may indeed be very important, politically and socially. First of all, it will help towards full employment of labour and adjustment of inequality of wage levels, and thus improve the standard of life of low wage earners and bring about social stability in low class populations. Secondly, it may help in establishing a stronger and wider range of middle classes than now, without which social and political stability and soundness may not well be secured. At the same time, the development of the middle sized industries by a stronger lead from the government than has been given so far, may also be economically important due to a more efficient utilisation of a still comparatively abundant factor of labour. If the development of these industries is achieved, the abundant labour will come to be equipped with a much higher efficiency than now and will contribute towards a higher rate of economic growth.

¹⁵ Middle sized industries referred to here roughly imply those firms with employees between 500 to 100. The fostering of comparatively efficient firms of those may be needed. The problems related to the organisations of some of related industries, and the combination of those with large scale industries, specialization, other administrative problems, etc., are omitted.

Relating to this point, it is very interesting to observe that the government has adopted a step, though as a subsidiary or tentative step, as one of several items of policies for redressing the deteriorating international balance of payments, in the end of September, 1961, which is explained as, "financial assistance in smaller industries to encourage more exporting". Too much equipment investment demand, given a lead by large scale, capital intensive industries, backed by the general government policies, caused a sharp rise in imports, and hence, the international balance of payments difficulties. If an extreme poorness in natural resources, the narrowness of balance of payments ceilings with development, the outlook of foreign trade in the near future (in that a greater increase with developed countries than with less developed countries is anticipated), a comparative abundance of labour, etc., are considered, the government policy may need to be given further reflection. The past trend in technical progress, eminent in divergence in two extremes, may not reflect a proper trend, i.e., may be a result of a distorted policy, and, if due considerations are given, the development of technical progress may show a faster rise in middle sized industries, than large scale industries. As to the future outlook, even though some capital saving nature of innovations may take place, due to the trend of the supply of capital and of labour, the trend of technical progress, and also the trend of the world trade structure, the economy will move more towards capital intensivity than now in the long run. Some of the efficient middle sized industries, if they could develop in the nearer future, may increase capital-intensivity in later years, according to the increase in the supply of capital, and thus contribute towards higher growth again. Even admitting this future trend, in view of the stage of capital accumulation, the modernisation in management and technical progress in

middle sized industries, the recent trend in the economy, foreign trade outlook, and all other factors discussed, the development of the middle sized industries may have to be given much greater attention at present than in the past, in relation to the analytical proposition of the choice of forms of fiscal investment in the light of the capital output ratio.

The analysis thus far developed stressed the importance of technical progress, and yet it was treated in the analysis as a given factor for given forms of investment at a given time. However, technical progress may be affected by the rate of economic growth, which is affected by the choice of forms of investment, which again may be affected by the direction of demand. Above all, the tempo of technical progress will be significantly affected by the investment for technical innovation, i.e., research investment. The role of technical progress in determining the economic growth in Japan is very important, and it will be particularly so in the near future when the supply of labour is gradually becoming less elastic. The problem of research investment arises because, in spite of its essential importance, it may not be fruitful or profitable in the short run, and particularly, in many cases, it is not economical to be carried out by individual enterprises. This is because, due to the nature of the investment, a large amount of fund is needed to supply modern and efficient equipment. Here arises the need for the government to give an initiative in an enlargement of research investment. However, the government effort in this field has been extremely limited and industrial scientific research has been mainly carried out individually by large scale industries. The importance of research investment has recently been heard in industrial sectors more than heretofore, and the government has indeed slightly increased its effort. However, the government effort is still

too little compared to the urgency of the problem. A large scale national scientific research institute may need to be established, as soon as possible, in full co-operation with private industries. A large part of defence expenditures of developed countries is spent for scientific research. Lack of this, with still little effort by the government, may present a very serious problem in the economic development of Japan amidst technical innovations in developed countries. Moreover, a large part of technical progress could until now take the form of importation of advanced technique from developed countries. However, a once widespread gap in technical progress between Japan and more developed countries is narrowing, thus reducing an easy going convention of importation of technique; and a due contribution of Japan to the world technical progress will come to be expected in the future. The need for research investment via the fiscal fund will be very significant for further economic growth.

Relating to this point, a higher technical progress will require a higher technical skill of workers which may require an enlargement and an improvement of technical education. A higher development of technical education is urgently needed in view of a high rate of industrialization. The role and the importance of the government investment in this field will still be increased in the future when higher techniques will be utilized and also when the supply of labour is gradually becoming comparatively a scarce factor. The higher technical education will, via improving the quality of labour, contribute towards the increase in productivity and towards a higher growth. The development of technical

education will inevitably involve a problem of the educational system. In spite of an over abundance in the number of universities and university-colleges, science education is very insufficient. Partly due to the unification and standardization of the education system after the Second World War, and partly due to the practical negligence of the government in the adjustment of the education system according to the need of industries, technical education has been extremely neglected. It is only this year (1961) that an introduction of a new "Industrial Special High School System" has been decided upon. The new system, which covers five years of technical education, corresponding to the years of high school and the two-year-course university-colleges, is designed to fill partly this demand of industries. This is a very important decision and the development of the system is desired. However, the decision to introduce the new system is just a start. The maintenance of a high level of technical education, and for that purpose, the guarantee of a sufficient amount of high quality of teachers, are the crucial points. Increase in the number of science students, the improvement in research equipments, improvements in the status of scientific research workers and teachers, may be needed, as well as an improvement of the systems. Moreover, if consideration from government finance, or from the availability of qualified teachers strongly suggests that radical reforms, then transformation of some of the existing colleges into technical colleges or into special technical high schools together with the majority of staffs of them may be required. In view of the shortages of science teachers at present, this may be a most suitable policy in the short run. This again may remedy some of

the outstanding deficits in the Japanese university education system, in that the divergence in quality of education among different universities and university-colleges is too great, most distinctly due to a careless and over abundant establishment by transferring some of the old system high schools into new universities or colleges in the post-War period. This again may stimulate the improvement of general education by efficient use of the government fund and by enlargement of necessary branches like science education.

Relating to the last point, the improvement of general education via fiscal investment, to improve a quality of labour, is also very important, and will be still more important when the supply of labour becomes short in the future. The government effort to improve the mobility of labour, by reducing several impeding factors, will become a more important policy in the future. The spread of education, particularly a modernisation of a feudalistic idea in agriculture and small sized industries, may be needed. Regional economic development will be an important factor. The development of middle sized industries may play a desirable role. The improvements of transportation and housing may still become very important.

The last point leads to the general argument of the role of fiscal investment in increasing social overhead capital. A very rapid economic expansion of Japan has left behind a fragile structure of social capital, which has sometimes hindered smooth economic development. The social overhead capital is those fundamental capital assets, such as, roads, harbours, railways, waterways, government planned house buildings, schools, hospitals, etc. which

form the basis of national life and on which bases production is smoothly carried out. The benefit of those assets goes to the economy or society as a whole, rather than to individual firms or persons. In many cases, these social overheads are nearly impossible for individuals to supply, and, even when possible, cost too much if individually planned. In most cases the enlargement of these is not profitable, hence cannot usually be expected from private enterprises. This social overhead capital can be classified into three according to the difference in the function, i.e. the first to "strengthen the industrial bases", the second to "expand bases for living", and the third to "strengthen facilities for land conservation."¹⁶ Primary importance is attached by the government to the first category, which may, as a whole, be a proper direction, since insufficiency of industrial facilities is becoming a very important bottleneck in economic growth. The improvement in transportation and communication facilities, more particularly, the improvement in road, harbour, and industrial water supply, seems to need special attention. As to the second category, apart from general policies for housing, sewage, water supply, hospitals, etc., special attention should be paid to the improvement of working conditions in small sized industries, towards a healthier and more hygienic stage. This may not be achieved effectively without efficient administrative guidance by the government labour authorities and also through control of financial organisations, in close co-operation with local governments. The problem of small and middle sized industries relates also to the modernisation of agriculture, the correction of

¹⁶ The same classification is seen in the New Long-Range Economic Plan of Japan (1961-1970), Economic Planning Agency, Japanese Government, The Japan Times, Ltd., pp. 34-35.

regional imbalance in the industrial development, and may not be separated from future local city plannings. As to the third category, forest plantations may need special attention, as well as water control. The former may involve administrative problems on the reformation of the forest ownership system.

The choice of forms or types of investment may also be strongly affected by the direction of final demand. The pattern of consumption, partly affected by the stages of development, may need to be considered. The recent shift of emphasis from foodstuffs and clothing to durable consumption goods, housing, and miscellaneous expenses, has affected the pattern of investment. The direction is towards more capital intensitivity than otherwise. The pattern of external demand, i.e. the future outlook in world trade, may need strong attention. The tempo of industrialization, as well as the rate of economic development, in less developed countries need very great attention. In the more distant future, more heavy industrialization may be needed. For the nearer future, it is anticipated that trade with developed countries will be expanded more than with less developed countries.¹⁷ The comparative abundance in labour with a yet comparatively cheap wage may be an important feature of international comparison with these countries. In view also of the stages of industrialization of less developed countries, the proper direction of investment form for the nearer future may be slightly different from that for the longer future.

Relating to the problem of demand, the guarantee of sufficient effective demand for production increase must be given special attention in the future. According to the higher accumulation of

¹⁷ Export target in New Long-Range Economic Plan is based on this anticipation.

capital, the gradual decrease in the rate of increase in the supply of labour and the improvement in the standard of life, this consideration will become more important than now. The improvement in social services, particularly that of pension payments may come to have a very important role in the future. The previously mentioned development of middle sized industries, and a more efficient and abundant use of labour than now, may become very important from the point of view of a guarantee of future demand, as well as in the maintenance of full employment as a social and political requirement.

We must add here that it is not fair to say that the government is not at all giving attention towards these policy considerations. Contrarily, the importance and the need for improving social overhead capital is strongly expressed in the recent "Ten Years' Economic Plan", etc. We have also seen that the government has gradually shifted its emphasis of policy considerations of the Fiscal Investment and Loan Programme from the supply of funds to the development of key industries to that to the sectors of social and public interest according to the economic development. As a whole, the government policy seems to be indicating a right direction. Nevertheless, there still remains the problem which among several alternatives to emphasise, and in what proportions.

We have emphasised the importance of research investment, technical education, and the development of middle sized industries more than the probable line of government policies, although admitting that the government is also showing considerable efforts towards those directions. As to the development problem of middle sized industries, we have emphasised it more from the economic side, rather than, as is more commonly accepted in the

notion of small and middle sized industries, from the social considerations. Therefore, as to the proportion of the Fiscal Investment and Loan Programme, we are inclined to suggest that the proportion of funds directed to the middle sized industries (about 11% in 1960 Programme, see Table 7, Chapter II, Section 4) should be much increased, while loans to large scale key industries (17% as Industrial Development alone and 23% if Encouragement of Exports are included, for 1960) may have to be reduced. (It must be admitted here that a large part of Industrial Development is occupied by loans for electricity, and this part may not have to be reduced. This is because, on the one hand, the government is controlling electricity price, and, on the other hand, supply is insufficient while demand is increasing). The loan to the agricultural sectors, etc. (7.7% for Agriculture, Forestry and Fishery in 1960) seems to me rather out of proportion, in view of the past record of the economic growth according to industrial sectors, (i.e. the primary industry has shown a very slow progress), and the possible direction of the future economic structure. It seems to me that this proportion of allocation may even reduce the tempo of modernisation of economic structure, though political considerations of the condition of the backward agricultural sectors, and, particularly of the direction of "vote", is imaginable. The improvement of transportation and communication facilities may be urgently needed. Yet, it may not always be correct to approve it unconditionally. This is because the improvements of some of those facilities by fiscal funds may, via a distortion in the price mechanisms, serve for the benefit of specific sectors of the economy. There are cases where we may suspect that large scale industries may be benefitting most. The final burden may have to be borne

by tax payers, particularly by those wage and salary earners, who are subject to the most thorough levying of taxes by taxation authorities. Further analysis may have to be developed in this way, if fairer understanding of the social overhead capital is to be required.

Discussions of some of the other industries, some of the components of social overhead capital, detailed classification of types of investment, three sectoral classification of industries, (i.e. primary, secondary and tertiary), etc., have been omitted. However, a large field has been covered in the discussion.

The problem of the choice of forms of investment has thus been shown to accompany so many specific considerations due to fiscal investment. This involved several administrative and systematical problems, and required social and political, as well as economic, considerations. To satisfy these, such as that of the increase in social overhead capital, may mean, in many cases, a heavily capital intensivity. These choices required for higher growth may thus increase the capital/output ratio and so contradict the notion of a high rate of growth derived from a narrow adaptation of a Harrod-Dormer type of growth model analysis. Thus in the practical choice of forms of fiscal investment, there exist so many specific factors to affect the investment decision. It suggests that the problem of the choice of forms of investment cannot be answered by a mere application of one abstract economic principle. However, this does not mean that the problem is outside of the sphere of economic principles. We can treat it still in the wide field of economic theory.

We can now finish our analysis, since we have placed back the

pension surplus into the Fiscal Investment and Loan Programme and have considered the investment policy in a wide field of the same Programme. Hence, this is the very institutional framework on which the National Pension Scheme operates.

Chapter VI. OTHER STUDIES OF THE FUTURE OF PENSIONS
IN JAPAN.

The object of this chapter is to appraise the conclusions of the previous studies related to our subject by comparing them with our own.

First of all, some conclusions of the Kimura Study are scrutinized.¹ In the concluding part of the analysis, the Kimura Study states: "The annual increase in national income during five years immediately after the start of the scheme will be within the upper limit of about ¥700 thousand million, and lower limit of about ¥300 thousand million (if the marginal propensity to consume of pensioners, \bar{c} , is unity), while about ¥250 thousand million (if both of the marginal propensities to consume of the economy as a whole, c , and of pensioners, \bar{c} , are equal to 0.75)."² In a similar way, it analyses the annual increase in investment and in consumption in absolute magnitudes by a calculation based on specific assumptions about the magnitude or the range of the magnitudes of the coefficient. Moreover, it compares the magnitude of the changes in investment/

¹. For the Kimura Study, see Introduction.

². (See) Kimura and Others, ibid., p. 56.

investment and in consumption with the probable total investment and consumption in a particular future year and estimates the percentage increase in investment and consumption. As the Study states, "in order to get a rough idea what these values mean, assume that "the Pension Commissioners Plan"³ is enforced in 1960,⁴ and personal consumption and investment in 1955 are projected by the estimated rate of growth of 7.5 per cent per annum. Then estimated personal consumption expenditure for 1959 is about ¥6.5 billion, while domestic capital formation is ¥2.8 billion.

The annual increase in investment is calculated as about ¥100 thousand million, and the annual increase in consumption is calculated as the upper limit of about ¥600 thousand million, as the lower limit of about ¥200 thousand million (where $\bar{c} = 1$), and about ¥150 thousand million (where $c = \bar{c} = 0.75$). Therefore the rate of increase in the investment demand as against the previous year is 3.5 per cent, while the corresponding rate of increase in consumption demand will be within the upper limit of over 9 per cent and the lower limit of over 3 per cent (when $\bar{c} = 1$), and over 2 per cent (when $c = \bar{c} = 0.75$). If the rate of increase due to the 6.5 per cent

3. This is one of the tentative plans proposed in the process of the formation of the National Pension Bill, and is different as we show later, from the National Pension Bill actually promulgated.

4. The Kimura Study took place early in 1958.

rate of increase of the national income is added to these increases, the rate of investment increase as against the total investment demand of the previous year will be 10 per cent, while that of consumption will be between 15.5 per cent and over 8.5 per cent, etc."⁵ It may be clear already from the conclusions I have derived that I cannot approve this type of calculation. As I mentioned in my tentative conclusions, I have intentionally avoided this type of calculation of absolute magnitude, (though it has been very tempting), since I fully realised the difficulties associated with it.

The Kimura Study seems to neglect the multiplier time-lags in the analysis of this "Pension Commissioners' Plan," (which is a funding scheme). It calculates the possible range of the changes in national income which are likely to be caused by the introduction of the pension scheme as if the multiplier effect will be realized instantaneously in these particular years, and it shows these changes in income through years in a diagram.⁶ Since no adjustments are made in view of the multiplier time-lags in the diagram, and no mention is given, one might be able to argue that the Kimura Study

5. Kimura and Others, ibid., pp.58-59.

6. See Kimura and Others, ibid., p. 91, Diagram 1.

treats in this case the multiplier effect as being realized instantaneously within the year. The only explanation that one might be able to give as a defence of this treatment is that, if the impact changes through years are nearly the same, the leakage to later years of the multiplier effect (caused by the impact effect of the year) and the leakage succeeded from previous years of the multiplier effects (caused by the impact effects of the previous years) may cancel out each other. In consequence, the total changes in income calculated as if the multiplier effect will be realized instantaneously may concur with the summation of the effects which will actually be realized within a particular year, i.e. with the actual accumulated multiplier effects of the year. However, it will be very difficult to prove this for all the periods of the Kimura Study shown in the diagram. I do not quite understand why the Kimura Study was careful to mention the multiplier time-lags only in the analysis of a pay-as-you-go plan, and did not mention it at all in the analysis of a funding system. In the case of the pay-as-you-go plan, which the Kimura Study also analysed, the impact changes in the initial year is expected to be very great. Therefore, the consideration of the multiplier time-lags may be more significant in the /

the case of the pay-as-you-go plan than in that of the funding scheme. Nevertheless, the multiplier time-lags must be duly considered in the case of a funding scheme as well.

In the case of the analysis of the pay-as-you-go plan, the Kimura Study explains, "the whole of the multiplier process will not be instantaneously realized." However, it argues, "Yet, if the income velocity of the Japanese economy is 4, (i.e. if the multiplier time-lags is 3 months), and the marginal propensity to consume is 0.68, then about 90 per cent of the total multiplier effect will be realized within the initial year."⁷

I find some difficulty in this explanation, not to mention the difficulty in assuming this particular value for the future marginal propensity to consume.⁸ That is, the reason why the multiplier time-lags of 3 months for the Japanese economy are not explained in the analysis.

Moreover, this calculation explicitly assumes that all the transactions of the pension scheme of each year take place in the very beginning of that year. If this assumption, which is very convenient yet not practical,

7. See Kimura and Others, ibid., p. 52.

8. The year to be examined is concerned with the 1960, while the value of the marginal propensity to consume above mentioned is obtained from data in 1955.

is removed, the results may not be so simple as are calculated. Thus the explanation, based on these calculations of the absolute magnitude, involves some difficulty. In view of all these comments, one might be able to argue that the Kimura Study was not sufficiently careful in the treatment of the multiplier time-lags.

However, it may not be fair to say that the Kimura Study was not at all aware of the difficulty associated with the future forecast. It implicitly emphasised the difficulty in assuming a constant consumption coefficient in the long run. It also emphasised that, because of this difficulty, the reliability of the calculated results are extremely reduced in the long run. These are very important points. Thus the Kimura Study was indeed aware of some of the difficulty of the problems involved. Nevertheless, my aforementioned criticism on the method of analytical approach of the Kimura Study seems to me still to remain valid.

Though rather a small point, I am inclined to think that the Kimura Study is rather unsatisfactory even as an econometric analysis. This is because it does not give sufficient attention to the range of possible values of the future consumption coefficient, nor does it give an analysis of the length of the multiplier time-lag; in spite of it having tried to calculate the actual magnitude /

magnitude of the changes in income. As to the future values of the consumption coefficient, it simply makes use of the result of the previous study by other members of Tokyo University. It seems to me that sufficient reasons are not given for this. It may state that the result which shows a possible range of the consumption coefficient, i.e. between 0.75 to 0.9, is convenient. However, whether it is convenient, and whether that particular result of the estimate is reliable, are different questions. This is important since the reliability of the result will greatly depend on the adequacy of the estimates, if the calculation of the magnitude of the changes in income is required, let alone on other difficulties. I am not, of course, admitting that these calculation results are valid, or that the calculation of the magnitude is a good approach. I am simply adding my criticism that, even though this type of calculation be admitted, yet the analysis will still be under criticism. Nevertheless, the Kimura Study is right in emphasising the difficulty in assuming a constant consumption coefficient in the long run.

Secondly, the Kimura Study emphasises the difficulty of finding sufficient investment opportunities for the pension fund, particularly in those fields where competition with private investment does not occur, and yet /

yet where a rather high profitability is guaranteed. This may be particularly important when the surplus formation increases in the future. The Kimura Study states "If the ratio of the investment realization of the pension surplus is 90 per cent, the increase in national income will be 14 per cent less than would otherwise be the case. In addition, if the actual interest rate on the reserves becomes one per cent less than is expected, the increase in national income will be in total about 15 per cent less. If the investment realization ratio or actual interest rate becomes extremely low, the national income level may even decrease compared with the case where no pension scheme is introduced. Even though it is an extreme case, it seems to be in general rather difficult to find investment opportunities not in competition with private investment" and yet to guarantee a high interest return to the reserve fund.⁹ As I naturally find difficulty in that part of the explanation given in terms of the actual magnitude of the changes in income, I do not go into the calculation details but simply discuss the points raised in the terms of simple economic analysis.¹⁰

9. Since the original expression, i.e. "yet to raise high profits," is not so clear, I expressed the content as shown in the text. ibid., p. 58.

10. A similar point is raised in Kubo, M., "Problems of the National Pension System", Municipal Research, Vol. LI, No. 12, Dec. 1960, p. 42. It states, "It will be very difficult to realize high interest returns of a large amount of fund by operating it safely." "Therefore, it is better not to have a fund at all."

Though very important, it seems to me that there is a confusion in the analysis of these two different points, namely; that the investment realization ratio and the profitability, or, more accurately speaking, the interest rate on reserves, are two different problems. First of all, the investment realization ratio is indeed crucially important. This is because, whether or not a funding system means the accumulation of reserves in the real sense as the national economy as a whole, depends on whether or not the capital investment in real terms is increased more than would otherwise be the case. I have also shown in my analysis the alteration of the effect if the investment realization ratio (λ) is introduced.¹¹ However, this has not been emphasised as much as in the Kimura Study, - not because I have regarded it as a minor problem, but because I have considered that it is not so unrealistic to assume, as I have done, that the ratio is unity, (or very near to it). Such economic conditions as a strong demand for loanable funds for investment (observable in the past), a strong necessity for the state to increase social overhead capital, (as I have analysed in Chapter V), may partly explain that my assumptions are not so unrealistic. The members of the Japan Development Bank, which is the most important government financial institution and deals with the important /

11. See Further Complications 1. The Surplus-Investment Ratio, in Chapter III, Section 2.

important part of the actual management of the loan of fiscal funds to industries, have expressed a similar optimistic view on the investment opportunities of the fiscal funds. They say, "Regardless of the future growth rate of the Japanese economy, so long as the present economic system is maintained, the demand for loanable funds of the Fiscal Investment and Loan may increase,"¹² and are not likely to decrease.¹² "In many cases, the investment is decided solely by the government economic and industrial policies." "It may be possible to think rather that the Fiscal Investment and Loan Programme will be decided by how much the source of the loanable funds of the Fiscal Investment and Loan Programme will be increased."¹³ and 14. I do not need to commit myself to every single word of the quoted opinion, - particularly the part which says "regardless

12. The original expression, i.e. "yet will not decrease", may not be adequate, so the contents are expressed as is shown in the text.

13. See Economic Effect of National Pension System, Special Research Section, Research Division, the Japan Development Bank (Internal Print), 1959, p. 78.

14. The above research was made according to the enquiry of the Ministry of Welfare to the Bank on the economic effect of the National Pension System. The main part is devoted to the income redistribution effect of the System, but some analyses of the effect on growth and the investment policy of the reserves are shown. It contains a few interesting points such as those quoted above which are based on the practical experience of the management of the Fiscal Investment and Loan Programme. However, as I hold so many doubts on the analysis, and as I think the value of the study, in that part of the analysis concerning the effect on growth, is less than that of the Kimura Study, (it was also a mere magnitudinal calculation), and in view of the limit of the space, I would rather not discuss this analysis as a whole, except to mention in later paragraphs a few points it raised relating to the investment policy of the pension scheme.

of the future growth rate" may hold some difficulty - yet this opinion, I think, shows one aspect of the true picture of the increase in fiscal funds. This is, above all, valuable as the opinion of those practically engaged in this management of loans. Moreover, I have not been particularly in favour of high profitability, since I am strongly aware that social insurance is quite different from private insurance and should be examined in the light of quite different considerations.¹⁵

However, I may have to be sympathetic to the special difficulty which the Kimura Study had to face. This is that the tentative plan which the Kimura Study analysed expected 7.5 per cent per annum interest rate and planned that the difference between the actual interest rate and the thus expected interest rate should be subsidized by the Exchequer. Because of this expectation of an unusually high interest rate, the Kimura Study naturally became very pessimistic on the availability of sufficient investment opportunities in the field "not competitive with private investment, and yet with high profitability."¹⁶ Out of two reasons above listed, the former, i.e. a consideration of investing fiscal funds so as not to intervene in

15. See Peacock, A.T., The Economics of National Insurance, ibid., pp. 41-50. and see also Section 2, Chapter I.

16. Kimura and Others, ibid., p. 58.

the private investment, is a very important point. Hence, if this consideration is not given, the level of capital investment in real terms may not be increased by the funding scheme.

However, the problem of the profitability involves more difficult considerations.

I am very much inclined to suspect that most of the arguments which emphasise the profitability of the surplus investment are still based on the concepts of "private" insurance, or, at least, are "analogising" the function of the social insurance from the principles of the private insurance. Even in the analysis of the Kimura Study, one part explains that the funding system is, "as it were, a huge state-managed insurance company and it is convenient in many points to compare it with (private) insurance."¹⁷ I am not referring here to the fact that the Kimura Study made some mistakes in the explanation following the passage above quoted. I am simply referring here to the fact that this type of analogy, however convenient it may look, is very dangerous

¹⁷. ibid., p. 72. The word "private" in parentheses is inserted by the present author. The original expression i.e. "to analogise (the function of the social insurance) from (the function of) the (private) insurance" is not so clear, so it is translated as is shown in the text for clarification.

and may lead to a significant misunderstanding of some crucially important points. One of these points, I think, could be the discussion on the profitability of the pension surplus.

Having encountered the difficulty of the high interest rate foreseen in the tentative plan, the Kimura Study emphasises the difficulty in finding sufficient investment opportunities on these conditions. If the actual interest rate falls short of the expected rate, it is argued, the increase in the Exchequer Supplement to fill this difference may cause some serious difficulty in the future.

Though this is an interesting point, the argument following may not be so insufficient. It emphasises, "therefore, the main problem of the 'tentative plan' in the long run, (such as later than 10 years after the enforcement of the scheme), lies in whether or not it is possible to operate the scheme satisfying the conditions which the "Plan" laid down, i.e. to operate the surplus in fields not competitive with private investment, but guaranteeing a high rate of interest returns to the surplus fund." It seems to me that this analysis is not sufficient.

If I were in the position of the Kimura Study, encountering /

encountering by the same difficulty in guaranteeing a high interest return, I would go on to criticise the adherence of the "Plan" to high interest returns on pension surplus, which apparently the Kimura Study did not emphasise. My argument will be this, that it may not be therefore, so adequate a policy to adopt such a strict regulation of the interest rate on reserves of the state social insurance scheme. Hence, the crucially important point is whether or not the investment of the scheme is maintained in harmony with the general employment policy of the government, and whether or not the capital investment in real terms is increased as an economy as a whole. It is rather dangerous, and it may not be adequate, to be too impetuous in requiring a high interest return since it may contradict the general employment policies. I can discuss several consequential problems why the contradiction to the general employment policy is dangerous.

However, the Kimura Study did not analyse in this way, i.e. to criticise the fundamental ideas of the planners of the tentative plan from the view point of the economic analysis of the pension scheme. Instead, it simply considered only in the framework of the tentative plan, and pointed out the difficulty in the operation.

One /

One might be able to defend the Kimura Study in this context by saying that, in view of the object of the Kimura Study to analyse the effect of the tentative plan, its adherence to the plan is justifiable. However, the lack of criticism in the way (as I have shown) may be apt to give an impression that the difficulty analysed by the same Study is the general difficulty in any funding scheme, unless the exceptional feature of the plan is well clarified. Moreover, though the Kimura Study emphasised the serious danger that the scheme may cause if this expected interest revenue (based on the rate of 7.5 per cent per annum) is not guaranteed, the government has adopted, within a very few years after this remarks of the Kimura Study, the present National Pension Bill, which does not hold such an exceptional condition. It is very interesting to see the new government projection based on the 5.5 per cent per annum interest rate,¹⁸ and which does not seem to involve a particular financial difficulty in foreseeable periods. This is a very interesting example showing how social insurance can be flexibly adjusted according to general policy considerations. It might not be so correct to discuss the problem with too much adherence to the framework of a

18. See Table 9 of the Section 5, Chapter II.

specific plan.

Furthermore, the Kimura Study adds "Moreover, if the real value of the reserves is reduced, and the increase in the Exchequer Supplement or in the contribution rate is caused, "the principle of a funding system, in that it is an insurance relationship by each individual contract, has already collapsed."¹⁹ This expression is not appropriate, since the principle of a social insurance scheme with a funding system is not at all an insurance relationship by each individual contract. This can be explained by those factors such as: that no risk adjustments are made in deciding the contribution rate, the finance of the scheme is subsidized by the Exchequer Supplement and fundamentally guaranteed by the tax collecting authority of the government, the scheme is compulsory, etc.²⁰ In other words, even though the scheme could be operated as the planners of the "Tentative Plan" envisaged, the social insurance is not an insurance relationship by

19. ibid., p. 62. It must be mentioned here that the Pension Commissioner's Plan did not contain the Exchequer Supplement in the normal sense, apart from the Exchequer Supplement to fill the gap of the expected interest rate and the actual interest rate on surplus fund.

20. See Section 2, Chapter I.

each individual contract.

The point which the Kimura Study raises here, i.e., the difficulty in maintaining the real value of the reserves in the long run, is very important. Nevertheless, one might suspect that, behind these expressions, the Kimura Study still contains some misunderstandings, or, at least, some conceptual ambiguity on the nature of social insurance. This conceptual ambiguity, if present, may have some important bearing on the treatment of the interest revenue in the Kimura Study.

As explained, the tentative plan which the Kimura Study analysed anticipated a special Exchequer Supplement to fill the gap between the actual interest rate and the expected rate. It was quite natural that the Kimura Study analysed this part of the interest revenue as an Exchequer Supplement. However, the effect of the main part of the interest revenue, which we have very carefully analysed in Chapter III, was simply neglected by the Kimura Study.

Because of this, such remarks as I have quoted previously follow, "If the actual rate of interest falls short of the expected rate by one per cent the growth in national income will be reduced by about one per cent."²¹ and ²².

²¹. Kimura and Others, *ibid.*, p. 58 for actual wording see corresponding quotation of footnote 9. Corresponding decrease in growth in national income seems to be about 1% in the quoted period. However, since no sufficient explanations are given, I am not yet convinced why the decrease in the rate of increase in national income will be 1%.

²². For the neglect of the treatment of the interest revenue in the Kimura Study, see also Further Complications.
2. The Interest Burden paid by the Private Sector, Sec.2. Ch.III.

However, it does not seem to me that this is correct.

I can visualize the impact of the increase of the interest rate in the flow of funds diagram which is presented in Chapter II. The increase of the interest rate on loans to the Exchequer will mean an increase in the amount of the transfer of funds from the Exchequer to the pension scheme. Similarly, the increase of the interest rate on loans to private industries will simply mean an increase in the flow of funds from the private sector to the public sector.

The changes in the interest rate will inevitably accompany some changes of the Exchequer Account or the Business Account. We can criticise the treatment of the Kimura Study by a very simple example. As found in the detailed analysis of Chapter II of the use of the Fiscal Investment and Loan Programme funds, a large amount of the funds are financed to local governments. Now a large part of these funds are received in the General Account of the Local Government, and the interest is paid out of general taxation from the same Account.²³ Now assume that the interest rate on loans supplied from the Trust Fund Bureau Special Account, (solely to which Account, the

²³. Administrative details are supplied from the Ministry of Finance, by Mr. Kitada.

24

pension surplus is deposited), is kept one per cent lower than the expected rate, and that this part is filled by the Exchequer Supplement. By the treatment of the Kimura Study, the increase in national income will be reduced by about 1 per cent compared to the case where the interest rate is kept at the expected level.²⁵ Now assume that the interest rate on loans from the Trust Fund Bureau is kept at the level of the expected rate, and that the Exchequer has to increase the subsidy to the local government, so that the local government can finance the increased interest payments to the Trust Fund Bureau. I can visualize that the previous flow of funds diagram will present the same form, since the difference is only whether the general taxation to finance the interest payments goes directly to the Trust Fund Bureau Special Account, or whether it goes through the Local Governments. In our analysis, the effect on national expenditure is naturally identical in these two cases. However, in the treatment of the Kimura Study, a difference in the total national income level results. I am rather inclined to suspect that this

24. For detail, See Section 4, Chapter II.

25. See footnote, 21.

negligence of the interest burden may have some important bearing on the lack of sufficient economic analysis of the structure and the function of the pension scheme, which I have analysed in very great detail in Chapter II. So far as our analysis is concerned, the function of the pension scheme has been analysed very thoroughly, and, by a simplifying assumption on the way in which the pension fund is allocated and, consequentially, the interest burden is distributed, it was possible to depict the impact of the pension scheme. On this framework, an analysis of the factors composing the scheme was given, with the aid of the social accounting representation. On this framework, the model was built, which includes business savings. All our analyses form a continuous line of thought which is fundamentally based on the simplifying assumption on the allocation of the pension surplus. However, in the Kimura Study, no such analyses are given. After a short legal or systematical explanation of plans, the Kimura Study went directly into the model building, econometric analysis, etc. I am inclined to think, that, even though the Kimura Study was aware of the need to introduce interest revenue, it would have been very difficult for it to find proper treatment for /

for the main part of the interest revenue. Moreover, this proper treatment of the interest revenue (as in this thesis) would have added extreme difficulty to the analysis, if the Kimura Study still aims at magnitudal calculation. I do not think, as already mentioned, that it is adequate to say that by neglecting this effect a part of the induced effects are built into the analysis, by being taken into the production effect.²⁶ I can add that, because of the neglect of the interest revenue, the result of the Kimura Study may be an overestimate; though, of course, the tentative plan is different from the actual National Pension Scheme which was analysed.

Among many points which the Kimura Study raised, the following one is also of interest "In the long run, it will be difficult to evade the changes in the real value of the reserves by economic fluctuations."²⁷ This point is interesting, since I consider that this is much more important than the mere profitability argument. However, the passages following this in the Kimura Study, cannot be accepted for the reasons which are already

26. See Further Complications 2. The Interest Burden by the Private Sector, Section 2, Chapter III (Corresponding to footnote 8).

27. ibid., p. 62.

mentioned, i.e., "If the increase in the rate of contribution, or the Exchequer Supplement, is required, either may unbalance the relationship of receipts and expenditures of each individual contract." The Kimura Study explains that, because of this need to raise contributions for the Exchequer Supplement in inflation, a funding scheme comes to show several resemblances to a pay-as-you-go plan. However, I am inclined to say further that the crucial point is that, because of the possible significant effect of the inflation on the finance of the pension scheme, the investment policy of the pension scheme should be very carefully directed so as not to cause inflation, even if not primarily to overcome the inflation.²⁸ This is one of the points illustrating why the investment policy of the pension scheme should be operated in harmony with the general employment policies. The reason why I do not so much emphasise the interest rate on surplus is because I am strongly aware of the problem that even though a high interest revenue is obtained, if it contradicts the

28. The Development Bank Study advocates more than this, in one part, namely, that the fund should be operated positively to overcome inflations. "Economic Effect of the National Pension System", *ibid.*, p. 75. I am not inclined to emphasise this much.

general employment policies, the result may be dangerous. The case of inflation is a very important example.

These are general criticisms of the analysis of the Kimura Study. However, it must be mentioned that the criticisms are given solely from the point of view of our analysis. Because of the limit of space, and the object of the analysis, we do not give a full appraisal of the Study; nor do I think that I am qualified to do so. I will simply add that, in spite of all the criticisms raised, the Kimura Study is still a very important study, and as mentioned in the Introduction, I am much indebted to its contributions. Moreover, it must be conceded that the Kimura Study is not a published work, but an internal publication of the Ministry of Welfare; it is also merely an intermediate report of the full study. Therefore, to criticise it as if it were a finished work may not be fair.

Another important study is "Problems of the National Pension System", of Mrs. Kubo.²⁹ Among several points she raised, the following are important.

In criticising the funding, she argues, that one of the reasons said to be why the government adopts a funding

29. There is another paper given by Mrs. Kubo of a more analytical nature, but is mainly concerned with the introduction and appraisals of the Kimura Study. As The majority of the discussions related to the Kimura Study are applicable. We will not discuss the paper here.

system is because the burden of the insured can be reduced by the interest revenue. However, she says, as the contributions of the individuals and the Exchequer Supplement are calculated with a compound interest rate, it is natural that this is ~~is~~^y profitable for the insured, but it only means that this is profitable as an insurance and nothing more. Her point does not seem as clear to me. However, she goes on to discuss that, when the pension payments start, pensions will be paid out of contributions of the current working population, the Exchequer Supplement, and the interest revenue from the fund, but the fund itself will not be run down. It seems to me that there is a slight confusion of three different, but closely related arguments. Let these be analysed in order. The first point relates to the problem whether or not the fund will be run down in the future. The last point of the quoted part of her discussion is very important. This is because one is apt to be lead to misunderstand that the contributors can draw the money which they need in the future as pension payments from the fund they accumulated. This can easily be caused if one considers the function of the social insurance from the principles of private insurance, since the word "funding" is rather ambiguous. Therefore, the point /

point Mrs. Kubo raises, that the fund will not be run down, is important for removing such misunderstandings as are mentioned above. However, it may be that the fund can be run down by a deficit financing, if the circumstances require this method.

Secondly, though I am not so sure of the logic of her argument, I may be able to use it to assist in arguing that the interest rate does not really matter despite the view of others. I am using, or possibly changing, her analysis, in such a way that a high interest, and a consequently high proportion of interest revenue, may be profitable, if we consider it as if it were a private insurance; but in essence, in social insurance, these are more the problems of distribution of burdens. If this line of argument causes some reflection on the general arguments which still stick to the profitability consideration rather too much, this argument is important. Thirdly, there remains a problem whether or not the funding system reduces the future burden of the economy. This comes back to my analysis that the point which fundamentally matters is whether or not capital investment in real terms is increased as an economy as a whole. If the rate of economic growth is increased due to the funding scheme, then the increased level of national economy /

economy may make it easier to finance the future burden of pension payments, than would otherwise be the case. Taxation revenue may be increased without altering the tax code; and this may make it possible to reduce the contribution rate without reducing the pension payments rate. This process of analysis may be more useful in clarifying the real issue, than that given by Mrs. Kubo. Nevertheless, if one considers that all the old age people should be given payment of pensions without delay, then funding may become unsuitable. The suggestion of Mrs. Kubo, that the postponement of payments of pensions by social insurance is not adequate, is an interesting point, though perhaps this function of assistance to "poor" old people, will be satisfied by the enlargement of assistance services.

Writing about the utilization of the pension fund in welfare facilities, Mrs. Kubo adds, "It will be unsuitable if an interest payment is required to those (insured) who utilize welfare facilities."³⁰ Mrs. Kubo criticises the practical aspect in that it is difficult to make facilities which farmers, self-employed, and workers of small firms scattered all over the country can easily utilize, and moreover they will not have time

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Kubo, M., ibid., p. 43.

to use them. This is an interesting remark, but may be slightly unfair, because the majority of these welfare facilities are workers houses, hospitals, etc. and not mere recreation centres. These are^yof course, very small points, but are useful to derive the following discussion of a more general nature.

The utilization of a pension surplus is indeed conventional. However, although many people think otherwise, this may not be a suitable investment policy of the pension fund; particularly so in the long run. This is dangerous, since it is apt to be accepted too easily that it is suitable for the welfare of the insured. The "welfare" of the insured is also a vague concept. If the utilization of the fund in welfare facilities is the only method or the most suitable method to guarantee the welfare of the insured, Mrs. Kubo may be right in saying that the welfare of the insured may be enhanced by not collecting contributions compulsorily from small income receivers. The crucial point is that the operation of the fund must be considered in terms of general employment policy. Such items as social welfare facilities could be met more easily by government general expenditures.³¹

31. Professor Suzuki also mentions this last point of financing welfare facilities by general government expenditures. See Suzuki, T. "Public Pension and Fiscal Investment", Municipal Problems, The Journal of the Tokyo Institute for Municipal Research, Vo. LI, No. 12, December, 1960, p. 10. See also footnote 5, Sec. 4, Chapter V.

Relating to this point, Professor Suzuki points out that the welfare of the insured is guaranteed by the sound operation of the pension finance for a long time, and a sure enforcement of pension payments in the future. For that purpose, he says, it is necessary to operate the fund profitably so that, if possible, a reduction of the contribution rate or an increase of the pension payments may be realised in the future.³² This remark is right in trying to see the welfare of the insured from a wider viewpoint than merely a direct return to the insured. Nevertheless, the part which says that the profitable utilization of the greater part of the fund is the most suitable way of operation, raises some doubts. If economic growth is hindered because of the pursuit of high interest return in the operation of the fund, the result may be worse than a low-interest revenue. Professor Suzuki sharply points out the dilemma between an increasing demand for a low interest rate of fiscal fund and the necessity to raise the interest rate^y on the loan from the Trust Fund Bureau. However, it may not be necessary to expect high interest returns on the pension funds, if it is

³². Suzuki, T., ibid., p. 10.

used well, in harmony with the general policy of increasing economic growth, as has been discussed. It may be much more dangerous to try to achieve high interest returns without giving careful consideration to the economy as a whole. If for example, inflation is caused or accelerated by the investment of the fund, this may be disastrous. Moreover, the economic effects of the investment of the fund may differ according to the types and forms of investment. It is quite dangerous to form an investment policy based on a high interest return or on the other hand to ignore the investment opportunities of the fund without careful consideration of the different effects of several possible investment forms. A flexible examination of the investment policy is essential.

Finally, Mrs. Kubo says, "The rate of economic growth is sufficiently high in Japan, as to make unnecessary the accumulation of capital by compulsorily collecting Fiscal Investment and Loan funds from low income strata by cutting down their consumptions." This is a very acute point. However, the criticism of this inevitably involves value judgement. Mrs. Kubo recommends, instead, an income proportional contributory non-funding insurance scheme.³³

³³. Mrs. Kubo made a recommendation of a pay-as-you-go plan type pension scheme. A Tentative Plan for an Old Age Pension Scheme for the entire Population, printed in Ministry of Welfare, May 1957.

She strongly maintains that a non-funding scheme works as a very effective built-in stabilizer against economic fluctuations. Whether or not this is accepted, it is an interesting point. Since the stabilization aspect is outwith the scope of this thesis, I will only briefly present some of my doubts. I doubt whether this type of pension scheme always and very effectively works as a built-in stabilizer. Even admitting that the pay-as-you-go plan reacts more flexibly to business fluctuations than the funding scheme in general, there are other factors to consider. First of all, the existence of time lags between changes in income and changes in business activities, between changes in consumption and changes in income may offset the stabilizing effects.³⁴

Examples from the past experiences of Japan may also be given. The experience of 1958 is an interesting example showing that the income changes and consumption changes may take place with certain time lags of changes in

34. Mr. Pearse has concluded that, in view of the multiplier time lags, and also in view of the sharp fluctuations of undistributed profits, the British income tax system has a destabilizing function. See Pearse, P. "Automatic Stabilization & British Taxes on Income." (Ph.D. thesis - preparation).

business activities, in the direction contrary to the business fluctuations.³⁵

Secondly, if economic growth is taken into consideration, the stabilizing effectiveness of this type of built-in flexibility may have to be modified.³⁶ Having thus shown some of the difficulties associated with the stabilizing effectiveness of the pay-as-you-go plan pension scheme, I argue that much more analysis is needed before it can be said that the scheme will work very effectively against business fluctuations. Moreover, perhaps this may not be so important to direct the policy of the pension scheme to fulfill this objective alone. Hence, there are other, and possibly more effective, instruments which can be used by present-day government.

35. See National Income White Paper, 1958. Economic Planning Agency, p. 27.

36. The modification of the analysis due to the economic growth is shown in Peacock, A.T. "Built-in Flexibility and Economic Growth," in Stabile Preise in Wachsenden Wirtschaft (Gottfried Bombach, Editor), J.C.B. Mohr, Tübingen.

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